

NOTES AND DESCRIPTIONS OF HYMENOPTERA FROM THE WESTERN UNITED STATES, IN THE COLLECTION OF THE UNIVERSITY OF KANSAS.

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THE material furnished me for study by Dr. F. H. Snow, of the University of Kansas, from his collection of undetermined Hymenoptera, is rich in new species. Parasitic Hymenoptera, particularly, are apt to lie idle in collections; to determine old species and then quite often to describe new species has taken considerable time; but the results of my work in describing so many new species are not at all surprising, since the field is only partly worked.

The species are arranged by states, and systematically, according to Ashmead's classification, but starting with the least specialized and not with the most specialized, as in that classification.

Of the super family Ichneumonoidea, four families are represented, in order of treatment—Evaniidæ, Ichneumonidæ, Braconidæ, and Stephanidæ—and the results obtained in each are as follows:

Family EVANIIDÆ.

GENUS.	OLD SPECIES.	NEW SPECIES.
Gasteruption	1 (Ariz.)	

Family BRACONIDÆ.

GENUS.	OLD SPECIES.	NEW SPECIES.
Rhogas.....	2 (Ks.)	2 (Ks.)
Heterogamus.....	1 "	
Lytopylus.....		1 (Ks.)
Bracon.....	1 (Ks.)	2 "
Melanobracon	2 (Ks. 1; Colo. 1.)	
Vipio.....	1 (Ks.)	2 (Ks. 1; Ariz. 1.)
Iphiaulax	4 (Ks. 2; Ariz. 2.)	5 (Ks. 2; Ariz. 3.)
Opius.....		4 (Ks.)
Diachasma.....		2 "
Bioteres.....		1 "
Ischneutidea?.....		1 "
Microplitis	1 (Ks.)	
Microgaster		1 (Ks.)
Apanteles	1 (Ks.)	
var.....	1 "	
Cardiochiles.....	2 (Ks. 1; Colo. 1.)	1 (Ks.)
Microdus.....		5 "
Crassomicrodus	3 (Ks. 1; Colo. 2.)	1 (Colo.)
Agathis	2 (Ks.)	1 (Wyo.)
Ascogaster		1 (Ks.)
Chelonus.....	1 (Ks.)	5 (Ks. 2; Ariz. 3.)
Brachistes.....		1 (Ks.)

Family BRACONIDÆ—*Continued.*

GENUS.	OLD SPECIES.	NEW SPECIES.
<i>Cœnocelius</i>	1	(Ks.)
<i>Zelee</i>	1	"
<i>Macrocentrus</i>	2	(Ks.)
<i>Meteorus</i>	3	(Ks.)
<i>Lysiphlebus</i>	1	"
<i>Aspilota</i>	1	"
<i>Sphæreta</i>	2	"
28 genera.	24 old sp.	45 new sp.
Total species, 69.		

Family ICHNEUMONIDÆ.

GENUS.	OLD SPECIES.	NEW SPECIES.
<i>Pristomerus</i>	1	(Ks.)
<i>var.</i>	1	"
<i>Thersilochus</i>	5	"
<i>Mesochorus</i>	1	"
<i>Agathobanchus</i>	1	(Ks.) = n. n.
<i>Paniscus</i>	1	(Ks. and Colo.)
<i>Lirnerium</i>	1	(Ks.) undt. 1. (Ks.)
<i>Ischnoscopus</i>	1	(Ks.)
<i>Olesicampa</i>	1	"
<i>Amorphota</i>	4	"
<i>Campoplex</i>	1 (Ks.)	1 "
<i>Exochilum</i>	1 "	"
<i>Anomolon</i>	1	(Ks.)
<i>var.</i>	1	"
<i>Atrometus</i>	1	"
<i>Eiphosoma</i>	1	(Ks.)
<i>Nototrachys</i>	2	(Ariz)
<i>Erymotylus</i>	1	(Ks.)
<i>Ophion</i>	1 (Ks.)	1 "
<i>Thyreodon</i>	1 "	1 "
<i>Metopius</i>	1	"
<i>Bassus</i>	1	(Ariz)
<i>Boethus</i>	1	(Ks.)
<i>Sychnoporthus</i>	1	"
<i>Glypta</i>	4	(Ks. 3; Ariz. 1.)
<i>Pimpla</i>	3	(Ks. 1; Ariz. 2.)
<i>Ephialtes</i>	1	(Ks.)
<i>Thalessa</i>	1	"
<i>Rhyssa</i>	1	(Colo.)
<i>Harrimaniella</i>	1	(Ks.)
<i>Arenetra</i>	1	"
<i>Nematopodius</i>	1	(Ks.)
<i>Mesostenus</i>	1	"
SUBGENUS.		
<i>Cryptus</i>	<i>Callicryptus</i>	1 "
	<i>Itamoplex</i>	1 "
	<i>Mansa</i>	1 (Ariz.)
	<i>Habrocryptus</i> ?.....	1 (Colo.)
<i>Pezomachus</i>	3	(Ks. 2; Ariz. 1.)

Family ICHNEUMONIDÆ—Continued.

	SUBGENUS.	OLD SPECIES.	NEW SPECIES.
Hemiteles.....	Diaglypta?.....	2	(Colo. 1; Ariz. 1.)
Platylabus.....	Colocnema?.....	1	(Ks.)
Phygadeuon.....	Bathymetis..	1	(N. M.)
	Pezoporus?.....	1	(Ks.)
Ichneumon	Stiboscopus?.....	1	(Ks.)
	Eurylabus	1	(Ks.)
	Probolus.....	1	(Colo.)
Amblyteles.....		1	(Ariz.)
Ichneumon	Barichneumon ...	2	(Ks. 1; Colo. 1.)
	Cratichneumon?..	1	(Colo.)
	Stenichneumon....	1	(Ks.)
Trogus.....		2	"
39 genera.	14 subgenera.	29 old sp.	50 new sp.

Total: 79 determined; 1 undetermined species; total 80, including two named varieties.

Family STEPHANIDÆ.

	GENUS.	OLD SPECIES.	NEW SPECIES.
Stephanus.....		? (Mo.).....	?

Grand total for the superfamily Ichneumonoidea: Families, 4; genera, 69; subgenera, 14; old species, including one variety, 55; new species, including two varieties, 97; total species, less three varieties, 149.

Determinations, notes and descriptions follow:

Family EVANIIDÆ.

Gasteruption perplexus Cresson.

Female. Oak Creek Canyon, Arizona; August, 1902, F. H. Snow.

Family BRACONIDÆ.

Rhogas intermedius Cresson.

Douglas county, Kansas, May; Lawrence, at night, May, E. S. Tucker.

Douglas county; August, E. S. Tucker.

Variety with median lobe of dorsulum shining; dorsulum, metanotum and first abdominal segment maculated with black. Douglas county, Kansas; August, E. S. Tucker.

Rhogas terminalis Cresson.

Douglas county, Kansas, at electric light; June, E. S. Tucker.

Rhogas cockerelli, n. sp.

Related to *R. rileyi* and *atricornis*, from which it is at once separated by the black markings.

MALE.—Length, 7 mm. Head dull, almost uniformly rugulose, appearing somewhat reticulate, clypeus differentiated, the occipital raised line sharp and distinct; scape nearly twice as broad as the first joint of the flagellum and as long as the pedicellum and first joint of the flagellum combined. Antennæ sixty-two jointed. Thorax dullish; pleura rather shining, dorsulum closely punctured, the punctures shallow and indistinct, parapsidal grooves distinct, pleura in part punctured nearly like the dorsulum, partly rugulose; metanotum rugulose, almost reticulate with an incomplete median raised line on the basal

half and a V-shaped raised line at apex; wings slightly brownish; nervures pale brown, stigma dark brown; second submarginal cell quadrangular, nearly as long on the radius as the first abscissa of the radius and the first transverse cubitus combined, the transverse median nervure is a little further removed from the basal nervures than the first transverse cubitus from the stigma. Abdomen shining, the first three segments longitudinally rugulose, the first and second segments have a distinct median raised line, on the third segment this line is indistinct and not prolonged beyond the middle, the apical half of the third segment is sparsely punctured and without striae, beyond the third segment the segments are smooth and polished. Dull yellowish red; the face, prothorax and dorsum of thorax in greater part ferruginous; space between ocelli, terminal tarsal joints, apex of posterior femora and tibiae, mesopleura, mesosternum and part of basal half of metapleura and apex of abdomen black. Pubescence short and faintly yellowish.

Type: University of Kansas. Type locality: Douglas county, Kansas, 900 feet. F. H. Snow. One specimen.

Rhogas melanothorax, n. sp.

FEMALES—Length, 2 mm. Head polished, face dull, minutely punctured cheeks with a distinct margin, scape broader than the pedicellum, twice as long. Flagellum destroyed. Thorax polished, parapsidal grooves on the anterior half of the dorsulum but not deeply impressed; metanotum unevenly sculptured, rather rugulose, anteriorly in the middle with a longitudinal raised line that terminates posteriorly in a smooth narrow space; wings pale hyaline, nervures and stigma brown, first transverse nervure longer than the second abscissa of the radius, the second submarginal cell rhomboidal. Abdomen shining and polished, the first two segments finely striate without a distinct median longitudinal raised line, the remaining abdominal segments smooth and polished. Black; flagellum, pedicellum and legs testaceous to brownish testaceous, posterior tibiae and tarsi brown, ovipositor testaceous. Covered with a fine silvery pubescence which is nowhere very abundant.

Type: University of Kansas. Type locality: Douglas county, Kansas. One specimen; August, E. S. Tucker.

Heterogamus graphicus Cresson.

Clark county, Kansas, 1962 feet; June, F. H. Snow.

Lytopylus azygos, n. sp.

FEMALE—Length, 5 mm. Head polished and smooth, the occiput sparsely punctured, face with rather indistinct minute punctures, elevated along the middle line, almost forming a keel; scape rather clavate, polished, the flagellum dull. Antennae broken. Thorax polished, the parapsidal grooves represented by a dent in the middle of the posterior half of the dorsulum; metanotum rugulose in the middle, the metapleura minutely punctured; wings with the first abscissa of the cubitus represented by a short stump, submedian cell distinctly longer than the median cell in the anterior wings, first submarginal cell triangular; nervures very dark brown, the membrane brownish. Abdomen polished, smooth, basal half of the basal segment impressed; ovipositor about as long as the metathorax and abdomen combined. Red; head, antennae, pectus, coxae, trochanters, four anterior femora except at tip and the sheaths of the ovipositor black; tibiae more or less dark brown; ovipositor brown. Covered with a short silvery pubescence which in no place is so close as to obscure the tegument.

Type: University of Kansas. Type locality: Morton county, Kansas. 3200 feet; June, 1902, F. H. Snow. One specimen.

Bracon piceiceps, n. sp.

MALE.—Length, 2 mm. One of the smallest species in the genus. Head shining; scape a little longer than the first joint of the flagellum, joints of the flagellum subequal. Tips of the antennæ broken, more than eighteen jointed. Thorax polished, smooth; wings clear, stigma and nervures blackish, first discoidal cell petiolate, the petiole nearly as long as the second abscissa of the cubitus, first abscissa of the radius a little shorter than the second transverse cubitus; parapsidal grooves not strongly impressed. Abdomen dullish, granular, first segment convex, bulged in the middle, depressed laterally. Ferruginous; abdomen and legs rather testaceous; head strongly brownish, almost piceous, especially the vertex; antennæ dark brown, almost black; anterior half of dorsulum and posterior half of abdomen dark brownish; claws and apical tarsal joints brownish. Thinly pubescent, the pubescence fine and whitish.

Type: University of Kansas. Type locality: Douglas county, Kansas. E. S. Tucker. One specimen.

Bracon kansensis, n. sp.

FEMALE.—Length, 3 mm. Head shining except the face which is dull and minutely sculptured; scape somewhat broader than the pedicellum, a little longer than the first joint of the flagellum. Antennæ broken. Thorax shining, dorsulum and pleura polished, metanotum polished, metapleura minutely sculptured, dullish; wings brownish, especially the basal half, nervures and stigma dark brown, second submarginal cell a little more than twice as long as broad, longer on the cubitus than on the radius. Abdomen shining, the first segment minutely sculptured on the sides and with a median impressed Y, apical half with some poorly defined striæ in the middle; second segment minutely rugulose with a longitudinal median elevation; terminal segments smooth, sparsely minutely pitted or punctured; ovipositor nearly one-half as long as the abdomen. Black; legs excepting coxæ, trochanters and femora at base brown, the edge of the abdomen and abdominal segments beyond the second brown, triangular lateral space, mandibles except castaneous apex and supraorbital line yellow. Pubescence silvery, not very abundant except on the parapsidal grooves of the dorsulum and on the metapleura of the thorax where it nearly obscures the tegument.

Type: University of Kansas. Type locality: Sedgwick county, Kansas. Taken in vineyard, September, 1895. E. S. Tucker. One specimen.

Bracon xanthostigma Cresson.

A variable species, usually honey yellow tinted with brown. One specimen has the dorsum of thorax, pectus, dorsum of first abdominal segment and a spot on the base of the second abdominal segment black; another specimen with the metanotum, dorsum of first abdominal segment and a spot at base of second abdominal segment black; a third specimen has a large spot on the metathorax black; a fourth specimen has the vertex, thorax excepting pleura and scutellum, dorsum of first abdominal segment, a large proportion of the dorsum segments two, three, four and five black. These specimens seem to represent only color varieties of the typical insect.

Douglas county, Kansas, May, 1892, W. J. Coleman; August, 1893, V. L. Kellogg and E. S. Tucker; April and August, E. S. Tucker; and one specimen, F. H. Snow. Morton county, Kansas; June, 1902, F. H. Snow.

Melanobracon rugosiventris Ashmead.

Clark county, Kansas, 1962 feet; June, 1903, F. H. Snow.

Vipio croceus Cresson.

Clark county, Kansas, 1962 feet; May, 1903, F. H. Snow. Morton county, Kansas, 3200 feet; June, 1902, F. H. Snow. Hamilton county, Kansas, 3350 feet; June, 1902, F. H. Snow.

Vipio piceipectus, n. sp.

Related to *croceus*, from which it is at once separated by the shorter ovipositor.

FEMALE.—Length, 7 mm. Head shining and polished, face dullish, minutely sculptured, vertex sparsely punctured, the space between the antennæ and ocelli not deeply impressed, but with a narrow median groove; pedicellum a little more than half as long as the first joint of the flagellum; first joint of the flagellum nearly as long as the next two joints combined. Antennæ more than thirty-eight jointed; broken. Thorax polished, the parapsidal grooves rather deeply impressed; metathorax rather indistinctly punctured, the sinuate impressed line on the metapleura quite deep, the adjoining surface rather closely punctured; wings strongly brownish, nervures and stigma nearly black. Abdomen shining and polished; first segment with a median elevated convex disc that is longitudinally striate, smooth on the anterior and posterior edge, an uneven space on each side of the central disc, the space bounded by a narrow fold that constitutes the upper lateral edge of the segment, the lower lateral edge not extending beyond the upper lateral edge, a very narrow groove lies between these edges; second segment with three smooth triangular spaces at the base of the middle space largest and terminating posteriorly in a narrow polished raised line, the remaining portion of the segment with closely arranged longitudinal striæ that do not attain the posterior border of the segment which is smooth; third segment with lateral basal, triangular, smooth spaces and small median triangular space which is rather striated and has the apex prolonged as a low ridge, in the middle of the segment the basal half is striated longitudinally, on the sides the striæ extend further back, but leave a broad smooth margin at the apex of the segment, the bifurcation of the crenulate furrow is not sharply defined; the fourth segment is smooth in the middle and has short striæ prolonged from the base at the sides of the segment; fifth and sixth segments smooth; ovipositor a little longer than the abdomen. Honey yellow; antennæ black at base, the flagellum largely dark brown; anterior legs black, excepting the apex of the femora, tibiæ, and tarsi; tips of the mandibles, pectus, middle legs excepting joints black; trochanters, tibiæ and tarsi of posterior legs black; ovipositor black, sheaths brown. Thinly pubescent with fine white or silvery pubescence.

Type: University of Kansas. Type locality: Hamilton county, Kansas. July, S. J. Hunter. One specimen.

Iphiaulax faustus Cresson.

Clark county, Kansas, 1962 feet; May, 1903, F. H. Snow.

Iphiaulax rugator Say.

Douglas county, Kansas, 900 feet; August, 1893, E. S. Tucker.

Iphiaulax militaris, n. sp.

Distinct in having the third, fourth and fifth abdominal segments smooth.

FEMALE.—Length, 6 mm. Head nearly cubical, dullish, finely punctured, and with a median groove between the antennæ and ocelli, vertex, occiput and cheeks polished, nearly impunctate; face shining, closely punctured, the punctures indistinct and shallow; anterior margin of the clypeus as usual, curved in by the characteristic polished basin-like depression below it; temples not as broad

as the eyes; scape dull, not stout, the margins not produced; pedicellum about one-half as long as the first joint of the flagellum, the first joint of the flagellum nearly as long as the second plus one-half of the third. Antennæ broken. Thorax polished; parapsidal grooves of mesonotum not sharply impressed, metathorax rather granular, the pleura with a sinuate groove extending from a pit near the anterior margin to the posterior margin; wings fuscous, but not deeply; neuration typical as in the preceding species. Abdomen polished; first segment elevated in the middle with two longitudinal grooves to each side, all rugose except the exterior groove which is smooth; second abdominal segment with a small equilateral triangular smooth space at the base extending posteriorly as a raised line nearly to the posterior border, an oblique groove diverging to each side from the lateral angles of the triangular space to a point near an oblique line that represents the suture between the second and third abdominal segments; third segment with the usual basal crenulated grooves which bifurcates laterally as in *perepicus*; the third, fourth and fifth abdominal segments are smooth and polished excepting the lateral portion which is rugulose; ovipositor about as long as the last three segments of the abdomen. Black; abdomen red; ovipositor brown, the sheaths black. Sericeous as in *perepicus*.

Type: University of Kansas. Type locality: Douglas county, Kansas, 900 feet. One specimen. F. H. Snow.

Iphiaulax melanogaster, n. sp.

FEMALE.—Length, 7 mm. As in *militis*, differs as follows: Clypeus and clypeal region with rugæ, this may be an aberration; antennæ fifty-two jointed or nearly; first abdominal segment with longitudinal groove in the middle of the median raised portion; the second segment with a basal flat lunule from the middle of which extends a raised line nearly to the posterior border of the segment, the segment is more coarsely sculptured, rather reticulate; the third and fourth segments are smooth, rugulose laterally; the fifth segment entirely rugulose; the ovipositor as long as the last four segments of the abdomen. Black; abdomen brownish, ovipositor brown, the sheaths black.

Type: University of Kansas. Type locality: Douglas county, Kansas, 900 feet. One specimen. July, F. H. Snow.

Opius basiniger, n. sp.

Second subdiscoidal cell open; should, perhaps, form a new genus allied to *Nosopoea*, from which it differs in having the stigma triangular. Related to *O. brunneiventris*, of which it may prove to be the female.

FEMALE.—Length, 3.5 mm. Head shining; cheeks apparently impunctate, polished; vertex and occiput smooth polished; face not distinctly polished, rather closely punctured, broad supraclypeal cuneiform polished convex space in the middle of the face, extending up to near the antennal line (an imaginary line across the face and joining the lower edges of the antennal sockets); clypeus shining, sparsely punctured; mandibles shining, crossing at tips; antennæ thirty-two jointed, the scape nearly as long as the first joint of the flagellum. Thorax polished; parapsidal grooves very abbreviated, represented only at the anterior margin of the mesonotum by linear pits, a median dimple on the posterior fourth of the mesonotum; scutellum elevated, polished, smooth; mesopleura with a shallow, rather broad impression; metathorax rather coarsely rugose, the metapleura shining and somewhat roughened; wings clear, tinted with brown, stigma and costal nervure brown, the other nervures blackish testaceous, petiole of the first discoidal cell as long as the first abscissa of the subdiscoidal nervure, petiole of second submarginal cell nearly as long as the second transverse cubitus, second

abscissa of the cubitus about as long as the petiole of the first discoidal cell. Abdomen with the first segment shining, rugulose, the rugæ not very elevated, a linear ridge on each side of the basal segment, the remaining segments polished; the second segment with an apparently semilunar impression on each side of a medial raised portion at the extreme base of the segment; the ovipositor would apparently not extend beyond the tip of the abdomen. Black; clypeus and mandibles except at tips castaneous; scape and pedicellum brownish, inclining to testaceous; legs testaceous, apical tarsal joint and claws dark brown; tegulæ and tubercles testaceous to brownish, first segment of the abdomen black, excepting the lateral margins which, like the remainder of the abdomen, are brown, the dorsum of abdomen is stained with black in the middle; sheath of ovipositor brownish testaceous. Very thinly pubescent with whitish, fine hairs, most abundant on the face and metanotum.

Type: University of Kansas. Type locality: Douglas county, Kansas. One specimen. July, E. S. Tucker.

Opius aberrans, n. sp.

Opius with the venation not quite typical.

FEMALE.—Length, 3 mm. Head polished; cheeks, vertex and occiput apparently without sculpture of any kind; face minutely, sparsely punctured; clypeus more distinctly closely punctured; mandibles not fitting closely to the anterior edge of the clypeus; antennæ twenty-eight jointed; scape a little longer than the first joint of the flagellum. Thorax polished, dorsulum with the parapsidal grooves abbreviated, represented anteriorly only by dimples or very short foveæ; scutellum elevated, smooth, and polished, mesopleura with a rather distinct oval rugulose impression; metanotum dullish, rather uniformly finely rugulose; the metapleura somewhat roughened, nearly smooth; wings pale, tinted with blackish, first abscissa of the radius about as long as the second abscissa of the cubitus, the second abscissa of the radius nearly as long as the first and second transverse cubiti combined, petiole of the first discoidal cell a little longer than the transverse median nervure, the first abscissa of the subdiscoidal nervure distinctly shorter than the petiole of the second cubital cell. First abdominal segment finely longitudinally rugulose, almost striate, remaining segments highly polished and smooth. The second segment has two dimples or impressions on each side of the middle of the base. Black; head except the occipital region and a large spot on vertex and front encircling the ocelli yellowish brown, cheeks brownish, scape and pedicellum brownish; tegulæ testaceous; legs testaceous, apical tarsal joints and claws brown; abdomen brownish testaceous, basal two-thirds of basal segment and apical third of the abdomen black, the black of the apical third of the abdomen extending along the sides to the middle. The pubescence is very thin and whitish, most abundant on the face and metathorax, but sparse even in those places.

Type: University of Kansas. Type locality: Douglas county, Kansas. August, E. S. Tucker.

Paratype, same place and date, has the abdomen blacker.

Opius luteiceps, n. sp.

Congeneric with *O. aberrans*.

Male. Length, 2.5 mm. Face shining, distinctly punctured on the lower portion of the inner orbital margin; clypeus distinctly punctured; vertex, occiput and cheeks highly polished, apparently impunctate; antennæ twenty-eight jointed, the scape a little longer than the first joint of the flagellum. Thorax polished, sculptured nearly as in the preceding species, the pleural impression,

however, is represented by an almost unwrinkled impressed line, the metanotum more shining and not so extensively rugulose, being appreciably smoother but not entirely so; wings as in the preceding species. First abdominal segment finely striate, the remaining segments smooth, highly polished; very thinly pubescent, the pubescence fine and whitish, most abundant on the face and metanotum. Black; head yellow, except a large brown spot on the vertex enveloping the ocelli; scape, pedicellum, tegulae and legs testaceous, terminal tarsal joint and claws brown; two basal segments brownish testaceous, the third and fourth segments with some dark testaceous in the middle.

Type: University of Kansas. Type locality: Douglas county, Kansas. August, E. S. Tucker. One specimen.

Opius nigrocastaneus, n. sp.

Congeneric with *O. aberrans* and *O. luteiceps*.

MALE.—Length, 2.5 mm. Face shining, almost polished, sculptured, but not distinctly, punctures apparent along the inner orbital margin; clypeus distinctly, closely punctured; cheeks, vertex and occiput highly polished, apparently impunctate; antennae twenty-nine jointed, scape broad, apparently a little shorter than the first joint of the flagellum. Thorax highly polished; the dorsulum with a round impression or dimple in the middle of the posterior half around which the tegument is rugulose, the parapsidal grooves are distinctly impressed near the anterior margin and are continued posteriorly to this dimple-like impression as faint impressions; metanotum finely rugulose; mesopleura with an oblique, shallow, linear impression; metapleura polished; wings as in the preceding congeneric species. Pubescence likewise as in the preceding species. Castaneous; front, vertex, occiput and cheeks, all but the lower or malar portion, black; scape, pedicellum and legs testaceous, terminal joints of tarsi and claws brown; dorsum of thorax black, brown streaks following the parapsidal grooves; scutellum brown; two basal abdominal segments and base of third abdominal segment brown, remaining portion of the abdomen black.

Type: University of Kansas. Type locality: Douglas county, Kansas. One specimen. E. S. Tucker.

Diachasma appalachicola, n. sp.

FEMALE.—Length, 2 mm. Head polished, apparently without sculpture of any kind; antennae twenty-three jointed. Dorsulum granular, with distinct parapsidal grooves that terminate posteriorly in a striate space in the middle of the posterior half of the dorsulum; mesopleura highly polished, with a linear groove nearly parallel to the dorsum; metathorax entirely rugose, approaching the reticulate; wings transparent with a yellowish-brown tint, stigma and nervures blackish testaceous; petiole of the first discoidal cell nearly as long as the first abscissa of the radius; first abscissa of the radius a little shorter than the second, the second abscissa as long as the second transverse cubitus; first transverse cubitus almost obsolete; if complete it would apparently mark off on the cubitus a second abscissa equal in length to the transverse median nervure; transverse median nervure almost interstitial only, a trifle distad of the basal nervure. Abdomen with the first two segments finely striated, the striae longitudinal and close together, and extending on to the third segment to form a narrow basal border, which does not extend to the sides, terminating so as to leave the lateral fourths of the base free, the remaining portion of the third segment and the succeeding segments highly polished and smooth; ovipositor extending beyond the abdomen for nearly two-thirds the length of the abdomen; very thinly pubescent, the hairs fine and whitish, most abundant on the metathorax, but even

there sparse. Black; clypeus, mandibles and anterior portion of prothorax brownish to brownish testaceous; scape, pedicellum and legs testaceous; meta-thorax except dorsum, which is blackish, and first two abdominal segments, dark chestnut brown; apical third of abdomen brownish testaceous; ovipositor brown, sheaths black.

Type: University of Kansas. Type locality: Douglas county, Kansas. One specimen. July, E. S. Tucker.

Diachasma secunda, n. sp.

FEMALE.—Length, 2.5 mm. Head polished, smooth, apparently impunctate; antennae twenty jointed, the scape and pedicellum together about as long as the first joint of the flagellum. Thorax polished, parapsidal grooves distinctly impressed; the dorsulum and scutellum smooth without sculpture of any kind; mesopleura with an oblique impression, above which the tegument is striate, the striae distinct and curving from the superior margin to the posterior margin, thereby making short arcs; metathorax almost uniformly rugose and shining; wings transparent, tinted with yellowish, stigma pale testaceous, nervures blackish testaceous, first discoidal cell with a very short petiole, transverse medius interstitial, recurrent nervure almost interstitial, received by the second cubital cell a trifle beyond the first transverse cubitus, second transverse cubitus abolescent, as long as the first abscissa of the radius, a trifle shorter than the second abscissa. Abdomen shining, the segments wrinkled; the basal segment with a large smooth space on basal two-thirds in the middle, the remaining portion of the segment more distinctly wrinkled than the succeeding segments; ovipositor extending beyond the tip of the abdomen about half the length of the abdomen. The head is of a dark chestnut brown; the mouth and mandibles more testaceous, pedicellum brownish, flagellum very dark brown, almost black; prothorax at least partly testaceous, mesonotum with the anterior half largely black or blackish, the posterior half dark brown, the parapsidal grooves brown, of the same hue as posterior portion of mesonotum, mesosternum apparently black, the mesopleura dark brownish and blackish, scutellum and metathorax very dark brown; abdomen brown like the metathorax and blackish on the dorsum; legs pale testaceous, apical tarsal joints and claws brownish.

Type: University of Kansas. Type locality: Douglas county, Kansas. One specimen. July, E. S. Tucker.

Biosteres indotatus, n. sp.

MALE.—Length, 3 mm. Front, vertex, occiput and cheeks polished, apparently impunctate; face shining, closely tessellate punctate, with a median longitudinal elevation, almost a keel; clypeus smooth with an impunctate or nearly impunctate anterior margin, closely punctured posteriorly, at least, more coarsely punctured than the face; antennae thirty-six jointed, the scape about as long as the first joint of the flagellum, pedicellum globular. Thorax, except the metanotum, polished; anterior third of mesonotum punctured and traversed nearly longitudinally for a short distance by the parapsidal grooves which are finally curved and diverge, terminating in a groove bounding the anterior lateral edge of the mesonotum; posterior third of the mesonotum with a median, longitudinal, fusiform impression that is apparently smooth; metanotum rather flat, irregularly regulose; wings with the membrane colorless, nervures and stigma blackish; first abscissa of the radius a little less than one-half as long as the cubitus, equal in length to the first abscissa of the discoidal nervure, or nearly as long as the pedicellum; first discoidal cell petiolate, the petiole as long as the

first abscissa of the radius. First abdominal segment finely, closely striated and shining, the remaining segments smooth and polished. Face with a rather abundant thin white pubescence, polished surfaces apparently without pubescence. Black; clypeus, scape and pedicellum brown; mandibles except tips, which are brown, and legs excepting the tarsi, which are more or less brownish, testaceous.

Type: University of Kansas. Type locality: Douglas county, Kansas. One specimen. August, E. S. Tucker.

Ischneutidea ? *proteroptoides*, n. sp.

Ocelli and neuration of anterior wings as in *Ischneutidea*, posterior wings as in *Proterops*. Perhaps this is entitled to generic rank.

FEMALE.—Length, 4.5 mm. Head shining, rather closely, minutely punctured or tessellate, a deep impression on each side of the clypeus near the eye; antennæ twenty-six jointed, scape nearly as long as the first joint of the flagellum, pedicellum wider than long; malar space almost obsolete. Thorax smooth and polished; dorsulum and pleura minutely, sparsely tessellate; dorsulum with parapsidal grooves faintly impressed; wings faintly clouded; nervures and stigma blackish; first abscissa of the radius two-thirds the length of the second abscissa, second abscissa of the cubitus a little shorter than the first abscissa of the radius, transverse median nervure almost interstitial; radius in posterior wings distinct and attaining the apex of the wing. Abdomen shining, smooth, minutely, rather closely tessellate. Thinly sericeous with white pubescence, the pubescence nowhere sufficiently abundant to hide the integument. Yellow; a large black spot surrounding and between the ocelli; antennæ, a broad median band on anterior half of dorsulum, lower two-thirds of mesopleura, mesonotum, part of metapleura and metanotum more or less black; disc of scutellum, apex of mandibles, apical dorsal abdominal segments in part, apical tarsal joints and posterior legs with apex of tibiæ and all the tarsi more or less dark brown.

Type: University of Kansas. Type locality: Douglas county, Kansas, 900 feet. One specimen. F. H. Snow.

Microplitis croceipes Cresson.

Sedgwick county, near Wichita, Kan., September, 1895; sweepings in peanut vines. E. S. Tucker.

Microgaster tuckeri, n. sp.

FEMALE.—Length, 3 mm. Head dull, finely rugulose; clypeus somewhat shining; scape nearly one and a half times as long as the pedicellum, scape and pedicellum combined a little shorter than the first joint of the flagellum. Antennæ broken, more than thirteen jointed. Dorsulum dull, finely rugulose, parapsidal grooves not deeply impressed; scutellum dull, sculptured like the dorsulum; propleura shining, minutely sculptured; mesopleura smooth, greater part dull, shining in the middle of the posterior half; metathorax somewhat shining, rugulose, almost reticulate, an imperfectly formed longitudinal raised line down the middle of the metanotum. Nervures and stigma varicolored from light to dark brown; second cubital cell oval; first discoidal cell petiolate, the petiole very short; submedian cell distinctly longer than the median cell, but not as much longer as the length of the transverse median nervure. Abdomen shining; first segment dullish, apparently minutely sculptured; remaining segments smooth, apparently impunctate and without sculpture that is not microscopic. Uniformly sericeous with short white pubescence that does not obscure the sculpture in any place. Legs and abdomen brownish yellow, the legs with a

somewhat ferruginous tint; extreme base and apical half of abdomen blackish; tarsi blackish.

Type: University of Kansas. Type locality: Douglas county, Kansas. One specimen. June, E. S. Tucker.

Apanteles congregatus Say.

Douglas county, Kansas, 900 feet; June, bred from host on blade of grass; E. S. Tucker.

Apanteles congregatus Say var. *hemileucæ* Riley.

Douglas county, Kansas, November; bred from cocoon mass on willow leaf; E. S. Tucker.

Cardiochiles seminigrum Cresson.

Hamilton county, Kansas, 3350 feet; June, 1902, F. H. Snow.

FEMALE.—Length, 5 mm.

Cardiochiles nigroclypeus, n. sp.

A variable species in size and sculpture. Related to *abdominalis*, from which it is readily separated by the smooth polished face and entirely black head.

MALE.—Length, 6.5 mm. Head polished, rather sparsely punctured with small punctures; scape nearly as long as the first and second joints of the flagellum combined, pedicellum inconspicuous, first joint of the flagellum distinctly longer than the second, the second and succeeding joints subequal; antennæ thirty-five jointed. Thorax polished, almost impunctate except on the impressed portions of the pleura; metanotum sparsely rugose, the area not sharply defined, imperfectly quadrangular, more nearly egg-shaped; wings brownish, nervures and stigma dark brown. Abdomen smooth and shining. Black; mandibles tipped with brown; legs, excepting coxæ and trochanters, and abdomen ferruginous; apical tarsal joints of anterior legs, tarsal joints of middle legs, apex of posterior tibiæ, tarsal joints of posterior legs and claspers at tip of abdomen dark brown to black.

Type: University of Kansas. Type locality: Morton county, Kansas, 3200 feet. F. H. Snow.

Paratype, 5 mm. long, from Clark county, Kansas. June, 1903, F. H. Snow.

Paratype about 5 mm. long, with the tip of the abdomen blackish, from Douglas county, Kansas.

Microdus nigrotrochantericus, n. sp.

FEMALE.—Length, 10 mm.; ovipositor, 13 mm. Head polished, face with rather closely arranged small punctures; cheeks more sparsely, minutely punctured; front with two shallow impressions below the antennæ, one below the other; clypeus highly polished, very sparsely punctured; proportions of the joints of the antennæ nearly as in the preceding species, antennæ forty-four jointed. Thorax sculptured almost exactly as in the preceding species, except the metanotum which is polished, somewhat punctured, a medial longitudinal channel rugulose with a narrow longitudinal convexity; metanotum separated from the metapleura by a rugulose line, the posterior face of the metathorax bounded by a raised line that almost describes part of an octagon; wings blackish, very dark; nervures and stigma black; first abscissa of the cubitus obsolete; the second submarginal cell triangular, not petiolate; hind wings with a closed discoidal cell. Abdomen polished, not sculptured. Thinly sericeous, part of the mesopleura bare. Red; head, antennæ, legs excepting posterior femora and

coxæ, ovipositor and sheaths black; the posterior coxæ and femora somewhat darker than the integument of the thorax and abdomen.

Type: University of Kansas. Type locality: Douglas county, Kansas, 900 feet. One specimen. F. H. Snow.

Microdus wichitaensis, n. sp.

FEMALE.—Length, 3 mm.; ovipositor, 2 mm. Head polished, apparently impunctate and without sculpture; the face slightly dullish; the clypeus highly polished; antennæ broken, more than fifteen jointed, the scape not as long as the first joint of the flagellum, pedicellum longer than wide, first joints of the flagellum a little longer than the scape and pedicellum combined. Thorax shining; parapsidal grooves deeply impressed; metathorax dull, moderately rugulose, the pleura shining; metanotum with faint carinæ that extend from base to apex and are closer together at the apex than at the base; wings brownish; nervures and stigma brown to brownish testaceous; second submarginal cell triangular and almost petiolate, the transverse median nervure received by the median nervure distinctly beyond the basal nervure. Abdomen, except the basal segment, shining and polished; basal segment dullish, finely longitudinally striate. Pubescence white, and nowhere obscuring the integument. Black; legs and abdomen brown with the following exceptions: Nearly all of the apical half of the abdomen, sheaths of the ovipositor and tarsi more or less blackish, posterior pair of tibiæ whitish, the apical third brownish, and a band near the base brownish.

Type: University of Kansas. Type locality: Sedgwick county, near Wichita, Kan.

One specimen. September, 1895; collected in vineyard; E. S. Tucker.

Microdus castaneicinctus, n. sp.

Related to *pygmæus*, from which it differs in the absence of foveæ on the second abdominal segment.

FEMALE.—Length, 3 mm.; ovipositor, 2 mm. Head and antennæ almost exactly as in the preceding species; antennæ twenty-six jointed. Thorax almost as in the preceding species, but the metanotum has two very distinct, not widely separated, nearly parallel carinæ, the pleura dullish and somewhat rugulose; wings with a brownish tint, the nervures brownish testaceous, costal nervure and the costal half of the stigma very dark brown, radial half of the stigma brownish testaceous; second submarginal cell triangular, almost petiolate; transverse median nervure received by the median nervure nearly as far beyond the basal nervure as the transverse median nervure is high. Abdomen shining and polished, except the three basal segments which are dullish and finely rugulose, a deep transverse groove at the suture between the first and second abdominal segments. Black; four anterior legs with the femora, except at base and the tibiæ and base of tarsi brownish testaceous; posterior legs with the femora brownish above, blackish beneath, the tibiæ pale yellowish, apical third and a band in the basal third dark brown; basal half of venter and part of third and fourth dorsal abdominal segments brownish or castaneous. Pubescent as in the preceding species.

Type: University of Kansas. Type locality: Douglas county, Kansas. One specimen. August, E. S. Tucker.

Microdus pimploides, n. sp.

MALE.—Length, 3 mm. Head, polished; face minutely punctured, the punctures well separated; antennæ with the same proportions as in the preceding species, twenty-nine jointed. Thorax polished, the parapsidal grooves distinct

and deep; metanotum rather coarsely rugose, somewhat reticulate, metapleura minutely sculptured, dull, appearing closely punctate; wings almost as in *castaneicinctus*, the transverse median nervure not so far beyond the basal nervure as in that species. Abdomen polished; the basal segment dullish, more minutely sculptured than the metapleuræ. Pubescent as in *castaneicinctus* and the other species described here; legs brownish testaceous, except the posterior coxæ which are largely black, and apical half of posterior femora above, a band on the basal third of posterior tibiæ, apical third of posterior tibiæ and tarsi which are more or less deep brown.

Type: University of Kansas. Type locality: Douglas county, Kansas. One specimen. August, E. S. Tucker.

Microdus agathoides, n. sp.

FEMALE.—Length, 4 mm. Head polished; face with small, inconspicuous well-separated punctures; clypeus more highly polished than the other portions of the face; scape nearly as long as the first joint of the flagellum, pedicellum a little wider than long. (Antennæ broken.) Thorax, except the metathorax, polished, almost impunctate and without sculpture of any kind; metathorax with the pleura somewhat roughened and separated from the metanotum by a rugulose linear area; metanotum with two longitudinal carinæ with a rough surface between, the carinæ a little wider apart near the base than at the apex; wings fuscous, nervures and stigma blackish; second submarginal cell sessile but not broadly thus, almost perfectly triangular; transverse median nervure meeting the median nervure a little beyond the basal nervure. Abdomen polished and with a rather deep lateral impression at the suture between the first and second segments; ovipositor nearly as long as the head, thorax and abdomen together. Thinly pubescent with white short hairs. Red; antennæ, front, coxæ excepting part of anterior pair, trochanters, base of four anterior femora; posterior tibiæ, tarsi, and sheaths of the ovipositor black; tibiæ and tarsi of four anterior legs brownish and blackish.

Type: University of Kansas. Type locality: Morton county, Kansas, 3200 feet. One specimen. June, 1902, F. H. Snow.

Crassomicrodus divisus Cresson.

Douglas county, Kansas, F. H. Snow. Sedgwick county, near Wichita, Kan.; September, 1895; collected in vineyard, E. S. Tucker.

Agathis hæmatodes Brullé.

Morton county, Kansas, 3200 feet; June, 1902, F. H. Snow. Variety: Douglas county, Kansas, 900 feet, F. H. Snow.

Agathus medius Cresson.

Clark county, Kansas, 1962 feet. June, 1903, F. H. Snow.

Ascogaster mimeticus, n. sp.

Superficially almost like *Chelonus altitudinis*.

FEMALE.—Length, 4 mm. Head dullish, rugulose; cheek nearly twice as broad as the eye, somewhat striate; face and clypeus minutely punctured, the face mostly rugulose, tending to reticulate; scape longer than the first joint of the flagellum, pedicellum nearly as long as wide, antennæ thirty-nine jointed, or with one or two joints more, some of the joints not clearly separated from the adjoining joints. Thorax dullish reticulate; mesonotum to a great extent punctured with small, closely arranged punctures; metathorax more coarsely reticulate than the pleura, with two blunt spines or projections between the lateral

short blunt spines, the extra spines shorter than the lateral ones and near the summit of the segment; equally spaced as far from each other as from the lateral spines; wings with only the basal and median nervures testaceous, the second transverse cubitus whitish. Abdomen dull, finely rugulose and reticulate, somewhat striate near base and with three equidistant longitudinal raised lines on the basal fourth. Thinly sericeous, the pubescence hiding the tegument in no place. Black; anterior femora and tibiae and middle femora yellowish ferruginous; posterior trochanters and femora ferruginous, the femoral with the apical fourth black; middle and posterior tibiae with the apical half blackish, the basal half yellowish ferruginous; tarsi blackish; mandibles yellowish ferruginous, black at apex.

Type: University of Kansas. Type locality: Douglas county, Kansas, 900 feet. One specimen. F. H. Snow.

Chelonus texanus Cresson.

Wichita, Sedgwick county, Kansas, September, 1895; sweeping in slough-grass in timber along Arkansas river; E. S. Tucker. Sedgwick county, Kansas, 1300 feet; September, E. S. Tucker. Clark county, Kansas, 1962 feet; June, 1903, F. H. Snow.

Chelonus egregicolor, n. sp.

MALE.—Length, 5 mm. Head dull; face rugulose; cheeks closely, rather obscurely punctured, almost appearing reticulate; clypeus shining, distinctly, closely punctured with small punctures, the anterior margin smooth; scape as in *texanoides*, pedicellum almost as long as wide, first joint of the flagellum distinctly longer than the second, if anything longer than the scape, antennae sixteen jointed. Thorax dull, coarsely reticulate; superior face of metanotum very coarsely reticulated, with a short coarse ridge at base and a similar one on each side of the middle at the apex; separating the reticulated portion of the metanotum from the scutellum is the strongly striated postscutellum; the lateral spines blunt and diverging; posterior face of metanotum reticulated. Abdomen dullish, reticulated; basal two-thirds rather distinctly longitudinally striate, basal third with a short elevated ridge on each side that diverges towards the base. Sericeous as in *texanoides*. Black; mandibles except apex and base, anterior femora except base, middle femora except basal half ferruginous, infuscated in part; tibiae and tarsi brownish testaceous on the four anterior legs, the middle tibiae blackish at base, tarsi blackish at apex, middle third of posterior tibiae yellow, basal and apical thirds fuscous; tarsi of posterior legs fuscous, metatarsus brownish at base.

Type: University of Kansas. Type locality: Douglas county, Kansas, 900 feet. One specimen. F. H. Snow.

Chelonus altitudinis, n. sp.

FEMALE.—Length, 4 mm. Head dullish, rugulose; cheeks somewhat striate; face rather shining, reticulate; clypeus shining, minutely punctured; antennae with the usual proportions, the segmentation of the basal segments of the flagellum not distinct. Thorax dull reticulated; the mesonotum smooth and minutely sculptured laterally; metathorax nearly as in the preceding species, the oblong spaces not so distinct; wings as in *exogyrus*, the basal, first cubital, recurrent and discoidal nervures pale brown. Abdomen almost exactly as in *exogyrus*, the basal raised lines nearly obsolete. Black; legs partly yellowish ferruginous, base of anterior femora, middle and posterior femora except apex black, basal and apical fifth of posterior tibiae blackish, tarsi except part of the metatarsus blackish. Sericeous like *exogyrus* and most other species of the genus.

Type: University of Kansas. Type locality: Morton county, Kansas, 3200 feet. One specimen. January, 1902, F. H. Snow.

Brachistes nocturnus, n. sp.

MALE.—Length, 2.5 mm. Head with vertex, occiput and cheeks polished, apparently impunctate; face elevated, dullish; clypeus smooth, sparsely punctured with indistinct punctures; antennæ about twenty-five jointed, scape nearly as long as the first joint of the flagellum, pedicellum longer than wide. Dorsulum polished, with a central triangular lobe the apex of which almost attains the posterior margin, the lobe bounded by the distinct parapsidal grooves which are quite deep and crenulate; pleura shining, rugulose; scutellum shining, sparsely punctured, a broad depression immediately in front of the scutellum with a longitudinal raised line in it; metathorax moderately and uniformly rugulose, almost distinctly reticulate; first abscissa of the radius almost obsolete, first discoidal cell almost sessile, recurrent nervure interstitial, transverse median nervure received by the median nervure a little beyond the insertion of the basal nervure, median nervure obsolescent between the basal nervure and the base of the wing; wings pale, membrane colorless or nearly, nervures testaceous, stigma and anterior margin brownish. Abdomen with the first segment longitudinally striate, the striae not very closely arranged, the succeeding segments smooth and polished. Thinly sericeous, the pubescence most abundant on the face between the clypeus and antennæ. Black; antennæ, except scape, and the clypeus brown; scape, mandibles and legs testaceous, the apical joint of the tarsi brown.

Type: University of Kansas. Type locality: Lawrence, Douglas county, Kansas. One specimen. May; taken at night; E. S. Tucker.

Cœnocelius politifrons, n. sp.

MALE.—Length, 6 mm. Head shining; face rather closely punctured, the punctures one or two punctures apart, sparsest in the middle; clypeus not clearly defined, longitudinally striate; vertex and cheeks polished, sparsely punctured; scape about as long as the pedicellum and first joint of the flagellum together, first joint of the flagellum a little longer than the second, the second and succeeding segments subequal; antennæ about twenty-five jointed (tips broken). Prothorax rugose; dorsulum polished, with distinct crenulate parapsidal grooves; scutellum polished, almost impunctate; mesopleura with the superior, anterior and posterior borders rugose, the disc polished and sparsely, finely punctured, a crenulate furrow separating the pleura from the smooth sternum; metathorax rugose; wings strongly brownish, the stigma and nervures very dark brown, petiole of the first discoidal nervure as long as the second transverse cubitus, the first abscissa of the radius a little shorter than the second transverse cubitus, the second abscissa a little shorter than the first transverse cubitus, transverse median nervure interstitial, likewise the recurrent nervure. Abdomen polished; the first segment rather grooved longitudinally in the middle. Thinly clothed with fine white pubescence. Black; metathorax ferruginous; posterior legs excepting tibiæ and tarsi a paler shade of ferruginous than the metathorax; abdomen yellowish ferruginous; tibiæ and tarsi brownish.

Type: University of Kansas. Type locality: Douglas county, Kansas. Collected in timber along Kansas river, near Lawrence. June, 1892, E. S. Tucker.

Zele crassicalcaratus, n. sp.

Related to *Zele mellens*, from which it is at once distinguished by the thickened spurs and difference in sculpture.

MALE.—Length, 5 mm. Head shining, rather irregularly punctured, the punctures shallow, most distinct on the front; clypeus polished, almost impunc-

tate, with no suture between it and the face; antennæ forty-seven jointed, scape and pedicellum together about as long as the first joint of the flagellum. Thorax shining, sculptured irregularly like the head, but the punctures stronger on the pleura, the pleura also partly smooth and practically impunctate; parapsidal grooves of mesonotum deeply impressed and converging posteriorly, terminating in a semilunar depression which is rugose; metanotum rugulose, not areolated, some ridges or raised lines present; wings slightly darkened, transverse median nervure nearly interstitial with the basal nervure, a little basad of the transverse median nervure, first discoidal cell sessile, second abscissa of the cubitus as long as the first abscissa of the radius, a little shorter than the second transverse cubitus; the second abscissa of the radius as long as the first transverse cubitus. Spurs of posterior tibiæ thickened, not tapering, shaped like a talon. First abdominal segment smooth, shining, with shallow small impressions, with a lateral carina that is nearly straight; the remaining abdominal segments more dullish, somewhat punctured. Thinly pubescent with white pubescence. Testaceous, in part with a castaneous tint; between the ocelli the tegument is nearly black; claws very dark brown; flagellum and tarsi more or less brownish; nervures of the wing brown, stigma testaceous; abdomen beyond the first segment brownish except on the apical margin.

Type: University of Kansas. Type locality: Douglas county, Kansas. One specimen., August, E. S. Tucker.

Macrocentrus delicatus Cresson.

Douglas county, Kansas; August, E. S. Tucker.

Macrocentrus atriceps Cresson.

Douglas county, Kansas; August, E. S. Tucker.

Meteorus relativus, n. sp.

Related to *M. communis* and *M. hyphantriae*, from which it differs in size and sculpture.

MALE.—Length, 4.5 mm. Head, face dullish, with closely arranged indistinct minute punctures; clypeus prominent, decidedly convex, sculptured nearly like the face; malar space practically wanting; front, vertex, occiput and cheeks shining, minutely sculptured; scape about as long as the first joint of the flagellum, pedicellum globular, first joint of the flagellum distinctly a little longer than the second, the second and succeeding joints subequal; antennæ twenty-three jointed. Thorax shining; prothorax with smooth borders and a large, triangular impressed rugulose space on the pleura; dorsulum very closely punctured, the punctures small and indistinct, posterior half of the dorsulum nearly entirely taken up by a semilunar rugulose impressed space; mesopleura polished, minutely punctured, with a shallow, oblique groove that is partly rugulose and a rugulose impression beneath the insertion of the wings; scutellum polished, rather sparsely punctured; metanotum rugose, almost reticulate, the superior face bounded posteriorly by a sharp curved ridge, posterior face nearly as coarsely sculptured as the superior face, broadly impressed along the middle line longitudinally; metapleura polished, more or less closely sculptured; wings clear with a brownish tint, stigma testaceous, nervures brown; recurrent nervure received by the second submarginal cell distinctly beyond the first transverse cubitus, the second abscissa of the cubitus nearly as long as the first abscissa of the radius; the transverse median nervure nearly as long as the first joint of the flagellum, the first abscissa of the discoidal nervure nearly as long as the transverse median nervure. Abdomen shining and polished; the first abdominal

segment with longitudinal closely arranged striae; other segments smooth. Covered with short white pubescence which is quite abundant but in no place hides the integument. Testaceous to brownish testaceous; some black around the anterior ocellus and between the anterior ocellus and lateral ocelli; antennae with the flagellum brownish, scape and pedicellum brownish behind; posterior corners of the dorsulum dark brown; superior face of metanotum very dark brown; first abdominal segment, excepting the petiole, dark brown above; other segments brownish, especially along the edge; posterior tibiae with a brownish band near the base and another at the apex; tarsi brownish, especially the apical joints.

Type: University of Kansas. Type locality: Douglas county, Kansas. One specimen, from lot appearing in cage containing both larvae and pupae of *Clisiocampa dissidia*, September, 1902, E. S. Tucker.

Meteorus noctivagus, n. sp.

Related to *agilis* Cresson.

FEMALE.—Length, 4 mm.; ovipositor, 1.5 mm. Head shining and polished, finely sculptured in part; clypeus prominent, distinctly convex, polished; malar space short, nearly as high as the pedicellum is wide; scape nearly as long as the first joint of the flagellum, pedicellum longer than wide, first joint of the flagellum a little longer than the second, the second and succeeding joints subequal; antennae twenty-six or twenty seven jointed. Thorax shining, minutely sculptured, parapsidal grooves deeply impressed, converging posteriorly and terminating in a rugulose impressed space which is semilunar and occupies all but the broad lateral margins of the posterior third; mesopleura with an oblique broad, shining, flat band that is almost parallel with the posterior margin of the segment and separating a narrow linear rugulose impressed space along the posterior margin of the segment from a triangular impressed rugulose space on the lower half of the segment; scutellum polished, some reticulations on each side of the disc of the scutellum; postscutellum divided into oblong spaces by longitudinal striae; metathorax somewhat dullish, almost uniformly rugulose, nearly reticulate; wings tinted with brown, stigma nearly black, the nervures testaceous and blackish; recurrent nervure interstitial or nearly; transverse median nervure interstitial. Abdomen polished and shining; first segment, except the petiole, striate but not regularly and longitudinally except on the posterior margin; the remaining segments smooth and highly polished. Sericeous with short white hairs, nowhere obscuring the integument. Black; antennae, face below antennae, cheeks along the eye, a spot on each side of vertex, lower half of propleura and abdominal segments beyond the second excepting the tip of the abdomen more or less dark brown; second abdominal segment brownish testaceous; mandibles, except tips, which are blackish, tegulae, legs, excepting middle and posterior femora at tip, posterior tibiae at tip and apical joints of tarsi, all of which are more or less dark brown, testaceous; sheaths of the ovipositor very dark brown, almost black.

Type: University of Kansas. Type locality: Lawrence, Douglas county, Kansas. One specimen. At night, May, E. S. Tucker.

Meteorus campestris, n. sp.

May be the western race of *Meteorus communis*, to which it is related. The uniformly dullish rugulose metapleurae separate this insect at once from that species.

FEMALE.—Length, 5 mm. Cheeks and vertex shining, apparently impunctate; face dullish, minutely sculptured; scape and pedicellum combined about as

long as the first joint of the flagellum, joints of the flagellum subequal. Antennæ (broken) more than eighteen jointed. Dorsulum shining, minutely, rather closely punctured; parapsidal grooves deeply impressed, converging and terminating posteriorly in a semilunar impressed rugulose area, which is dullish; propleura shining, closely sculptured; mesopleura with a broad, shallow rugulose groove traversing the segment diagonally, the upper portion of the segment also rugulose, between these two rugulose spaces is a shining, rather sparsely punctured space; metanotum rugulose, almost reticulate, with an indistinct median raised line, metapleura regularly rugulose, but more finely so than the metanotum, and dullish; wings clear, stigma brown, the anterior and posterior ends yellowish; nervures brown, first discoidal cell petiolate, the petiole very short, shorter than the first abscissa of the radius, which is as long as the first abscissa of the discoidal nervure, second abscissa of the radius shorter than the second transverse cubitus. Abdomen polished; the first segment longitudinally striate, the striæ fine and close together. Thinly sericeous, with short, white pubescence. Ferruginous; head and abdomen inclining to testaceous; tarsi brownish; sheaths of the ovipositor blackish; metanotum dark, rather blackish.

Type: University of Kansas. Type locality: Morton county, Kansas, 3200 feet. One specimen. June, 1902, F. H. Snow.

Lysiphlebus succineus, n. sp.

Related to *L. multiarticulatus*, from which it may be distinguished at once by the immaculate dorsum of thorax.

MALE—Length, 3 mm. Head shining, almost polished, smooth and apparently impunctate; antennæ nineteen jointed, scape and flagellum together a little longer than the first joint of the flagellum, joints of the flagellum subequal. Thorax shining, almost polished; the dorsulum especially smooth and polished; the parapsidal grooves rather distinct on the anterior half, strongly curved; metanotum roughened, transversely divided by a rather indistinct raised line, apical half longitudinally divided by another indistinct raised line, the basal half longitudinally divided by, apparently, two indistinct raised lines that are very close together; wings transparent with a yellowish-brown tint, stigma testaceous, tinged with black; nervures brown, the stump of the radius beyond the transverse cubitus distinctly longer than the transverse cubitus, the stump of the cubitus distinctly shorter than the transverse cubitus, the first abscissa of the radius nearly as long as the transverse cubitus and second abscissa or stump of the radius combined. Brownish testaceous; face with a dark brown spot in the middle; vertex and upper part of occiput black; second, third and fourth abdominal segments partly blackish; legs pale testaceous; flagellum almost black.

Type: University of Kansas. Type locality: Douglas county, Kansas. One specimen. August, E. S. Tucker.

Paratype with eighteen joints to the antennæ. July; same place.

Aspilota columbiana, n. sp.

FEMALE—Length, 1.5 mm. Head polished and smooth; antennæ eighteen jointed, scape and pedicellum together a little longer than the first joint of the flagellum. Thorax smooth and highly polished; a short, oblique, smooth, shallow depression on mesopleura; metathorax perfectly smooth and polished like the dorsulum; wings transparent, almost clear, tinted with brownish yellow; first abscissa of the radius a little longer than the second transverse cubitus, the second transverse cubitus nearly twice as long as the second abscissa of the cubitus, which is a little longer than the transverse median nervure, transverse median nervure and first abscissa of the discoidal nervure equal. Abdomen polished, apparently

not sculptured; ovipositor distinctly longer than the abdomen, about one-fourth longer. Very thinly pubescent, almost bare, the hairs fine and whitish; antennæ as usual quite hairy; the legs less hairy than the antennæ. Black; scape, pedicellum, legs and abdomen in part testaceous; abdomen with the first segment almost unicolorous with the legs, the succeeding segment brownish, otherwise black or blackish; ovipositor dark castaneous, sheaths black.

Type: University of Kansas. Type locality: Douglas county, Kansas. One specimen. August, E. S. Tucker.

Aphaereta subtricarinata, n. sp.

Superficially like *A. auripes*, from which it differs in the absence of a strong transverse ridge on metathorax and in the non-striate posterior face thereof.

FEMALE:—Length, 3 mm. Head smooth, polished, no impressed line between occiput and ocelli; antennæ twenty-four jointed, scape and pedicellum together a little longer than the first joint of the flagellum, joints of the flagellum subequal.

Thorax largely smooth and polished; the parapsidal grooves obsolete except on the anterior third of the mesonotum, where they are quite distinct; mesopleura with a dimple at the middle of the posterior margin, a somewhat crenulate shallow impression on the lower half; scutellum convex, quite elevated, smooth and polished; metathorax with a smooth superior face, that is shining and bisected longitudinally by a distinct, sharp ridge, the posterior face dullish, wrinkled and with two parallel longitudinal raised lines close together, one on each side of the medial line; metapleuræ smooth and polished; wings transparent, faintly tinted with brown, stigma and costal nervure dark brown; other nervures blackish testaceous, first abscissa of the radius about half the length of the second transverse cubitus, the second abscissa about as long as the first transverse cubitus and the first abscissa of the radius together, the first transverse cubitus almost as long as the recurrent nervure, the transverse median nervure almost interstitial, received by the discocubital cell a little beyond the basal nervure. Abdomen smooth and polished, the first segment dullish and wrinkled, the basal third with two diverging, distinct raised lines; ovipositor about three-fourths the length of the abdomen. Almost bare, sparse, fine whitish apparent on the face and end of abdomen. Black; mandibles and part of prothorax brownish testaceous; scape, pedicellum and legs testaceous; terminal joint of the tarsi and claws dark brown; basal joint of abdomen castaneous; ovipositor brownish testaceous, sheaths black or nearly.

Type: University of Kansas. Type locality: Douglas county, Kansas. August. E. S. Tucker.

Paratype with twenty-three joints to the antennæ and 2.5 mm. in length, taken at night, in May; Lawrence, Kan. E. S. Tucker.

Aphaereta delosa, n. sp.

Related to *subtricarinata* and to *muscæ*, perhaps identical with *muscæ*.

FEMALE.—Length, 2 mm. Head and thorax as in *subtricarinata*; antennæ twenty-one jointed, scape and pedicellum together distinctly longer than the first joint of the flagellum, but not much longer; first joint of the flagellum a little shorter than the third, the second joint distinctly longer than the third, remaining joints subequal; wings nearly as in *muscæ*; first abscissa as long as the second transverse cubitus, first transverse cubitus a little longer than twice the length of the first abscissa of the radius, second abscissa of the radius twice the length of the first transverse cubitus, transverse median nervure very short, shorter than the second transverse cubitus, received by the discocubital cell a

little beyond the basal nervure. Metathorax with a superior smooth shining face bisected longitudinally by a sharp ridge, posterior face apparently coarsely, rather sparsely wrinkled or ridged, no parallel carinæ at all evident. Abdomen smooth and polished; the first segment dullish, longitudinally rugulose; sheaths of the ovipositor as long as the abdomen, ovipositor hidden. Almost bare, pubescent as in subtricarinata. Black and as in subtricarinata, but in this species the following exceptions to that pattern occur: The propleuræ are brownish, the metanotum is brownish to brownish testaceous, the first abdominal segment is brownish testaceous.

MALE.—Length, 2.5 mm. Very much like the female; the posterior face of the metathorax not so coarsely wrinkled, brownish, nearly black. Antennæ twenty-four jointed.

Types: University of Kansas. Type locality: Douglas county, Kansas. Both types taken in August, E. S. Tucker.

Paratype, same place and date, with the metathorax piceous, almost perfectly black; in other respects similar to the type, excepting the antennæ, which are twenty-two jointed.

Agathis wyomingensis, n. sp.

FEMALE.—Length, 7 mm.; ovipositor, 5 mm. Head polished, sparsely punctured with minute punctures; scape clavate, curved, a little shorter than the first joint of the flagellum, pedicellum as long as wide, a little shorter than one-fourth the length of the first joint of the flagellum. Antennæ more than fifteen jointed (tips broken). Thorax polished, sparsely punctured, in some places with minute punctures; junction of the metanotum and metapleura rugulose, metanotum medially on the anterior half with a longitudinal narrow convexity that is bounded by a somewhat crenulate furrows making a kind of oval enclosure which terminates in a raised line that extends to the apex of the metanotum; wings fuscous, nervures and stigma very dark brown, second submarginal cell petiolate, the petiole nearly as long as the exterior side of the triangle. Abdomen polished; first segment with longitudinal ridges that become suddenly obsolete in the middle of the segment, are nearly parallel, and as wide from each other as from the sides, diverging at the base to meet the sides. Almost bare, pubescence white, extremely short and inconspicuous. Red; head black except malar space and part of cheeks and apex of clypeus, which are reddish; four anterior coxæ, trochanters and femora black excepting the apex of femora, which is reddish; four anterior tibiæ reddish brown, dark brownish at apex; posterior trochanters black; tibiæ blackish at base and apex; tarsi blackish; ovipositor and sheaths black; extreme base, and venter of abdomen largely black, dorsum of abdomen with some blackish suffusion on the sides near the middle.

Type: University of Kansas. Type locality: Lusk, Wyo. One specimen. July, 1895, Hugo Kahl.

Vipio erythrus, n. sp.

MALE.—Length, 7 mm. Head polished; front with a median longitudinal impressed line; face with irregularly separated shallow punctures, the clypeus not clearly separated from the adjoining tegument. Antennæ broken, more than forty jointed. Thorax polished; the parapsidal grooves not at all deeply impressed, practically obsolete on the posterior half of the mesonotum; metathorax with the characteristic longitudinal groove above which the metapleura are minutely punctured; wings as in the preceding species. Abdomen polished; the first segment with a broad, medial, elevated, smooth, convex portion, on each side of which is finely striated space bounded by a fold beyond which is a smooth chan-

nel, which in turn is bounded externally by the lateral edge of the segment; the second segment has a triangular smooth space medially at the base of the segment, on each side of which is another triangular space that merges externally with the smooth lateral margin of the segment; the apical smooth area occupies nearly all of the basal half of the segment and has a sinuate anterior margin; between this margin and the triangles at the base of the segment is a broad striate, sinuate groove or depression; third segment smooth, excepting the crenulate suture, the bifurcation of which is well marked on each side: the remaining abdominal segments smooth, quite convex. Red, tinted with brown and testaceous; posterior face of the scape at apex, pedicellum, flagellum, tibiae and tarsi more or less brown; posterior edge of the tibiae of the posterior legs, claws, palpi and tips of the mandibles black. Thinly pubescent with soft, silvery hair.

Type: University of Kansas. Type locality: Bill Williams Fork, Ariz. Type taken in September, 1903; one paratype taken in August at the type locality. F. H. Snow.

The paratype measures 8 mm, and is almost exactly like the type in structure, sculpture, and coloration.

Iphiaulax faustus Cresson.

One example has the third abdominal segment more coarsely sculptured than the cotypes and is maculated with black; the base of the fourth segment is also black, and the second has the lateral depressions dark brown, nearly black.

Bill Williams Fork, Ariz.; August, 1903, F. H. Snow.

Iphiaulax rugator Say.

Bill Williams Fork, Ariz.; August, 1903, F. H. Snow. Congress Junction, Ariz.; July, 1903, F. H. Snow.

Iphiaulax perepicus, n. sp.

Related to *epicus*, from which it is at once distinguished by the larger size and coarser sculpture of the abdomen.

FEMALE.—Length, 13 mm. Head nearly cubical, depressed and polished between ocelli and antennae; vertex, occiput and cheeks polished, sparsely, indistinctly punctured; face finely rugulose, appearing somewhat striate, dull, with a median indistinct furrow extending from the clypeus to between the antennae; anterior margin of the clypeus curved in by the characteristic basin-like depression beneath it, labrum elevated and keeled, appearing like a nose with flat sides, the apex pointed downward and backward; temples not as broad as the eyes; scape polished, sparsely punctured, stout, the margins not appreciably produced, pedicellum about one-third the length of the first joint of the flagellum, the first joint of the flagellum nearly as long as the next two joints together. Antennae more than eighty-five jointed. Thorax polished; parapsidal grooves of mesonotum not sharply impressed; metathorax with minute sparse punctures and a longitudinal groove on the pleura below the spiracle starting in a pit near the anterior margin of the pleura; wings very dark, neuration almost exactly as in *epicus*. Abdomen polished; first segment with an oblong, elevated, convex, smooth portion in the middle, two grooves on each side of the middle space, the innermost groove wrinkled transversely and separated from the outermost groove by a straight fold or ridge, the outermost groove ribbed and bounded externally by the edge of the segment; second abdominal segment with an acute triangular flat space in the middle at the base of the segment and the apex in the center of the segment where it is continued nearly to the apex as a ridge, a broad, shallow rath (?) V-shaped depression on each side of the middle occupy-

ing the space between the edge of the segment and the medial raised portion, the raised portion within this V and the raised portion of the lateral edge of the segment are rather sparsely punctured with smaller regular punctures; third segment with a basal crenulate groove that bifurcates in the middle of each side of the segment at the anterior margin and thus forms two nearly equilateral triangles, which are slightly impressed near the posterior margin, the remainder of the segment is partially keeled medially with a raised line on each side of which, for a short distance, the segment is rather confluent pitted or rugulose beyond this medial rugulose space, to each side, the segment is first irregularly punctured and then impunctate or minutely punctured and polished; the fourth segment is polished and sparsely, irregularly punctured; the fifth, sixth and seventh segments are polished and impunctate or nearly; the ovipositor is nearly as long as the abdomen and metathorax combined. Black; mesothorax, upper half of pleura and abdomen red; the second and third segments partly testaceous, the third and fourth segments brownish, at the junction of the mesopleura with the mesosternum is a castaneous line. Thinly sericeous with short white pubescence, the pubescence on the metathorax longest.

Type: University of Kansas. Type locality: Bill Williams Fork, Ariz. One female. August, 1903, F. H. Snow.

Ipbiaulax propinquus, n. sp.

FEMALE.—Length, 8 mm. Agrees very well with *I. militaris*, but differs in the following important characters: Antennæ fifty-six jointed or nearly. The metanotum has a distinct median furrow; the first abdominal segment is more distinctly sculptured and has a median raised line on the posterior half; the second segment is rather striated, and the triangular smooth space is reduced to a semicircular space or lunule; the ovipositor is as long as the abdomen and metathorax combined.

Type: University of Kansas. Type locality: Oak Creek Canyon, Ariz. One specimen. August, 1902, F. H. Snow.

Ipbiaulax cinnabarinus, n. sp.

FEMALE.—Length, 6 mm. Structure very much as in *militaris*, with the following differences: Face minutely rugulose, the clypeus differentiated and a supercylpeal space outlined; parapsidal grooves practically absent; wings pale brownish, nervures and stigma dark brown. Antennæ fifty-two jointed. Abdomen: The elevated portion of the first segment not very high, rugulose, the innermost furrows rather crenulate, the outermost furrows smooth; second segment rugose, appearing rather as if confluent punctured, the diverging, oblique impressed lines shallow and similarly sculptured; third segment with the bifurcation of the crenulate suture not very distinct, the triangles formed by the bifurcation smooth, punctured at the edge; the fourth and fifth segments sculptured like the second, somewhat coarser; ovipositor a little longer than the last two segments. Red, almost like cinnabar; antennæ, except the scape above, tips of the mandibles, ovipositor and tips of the feet, black.

Type: University of Kansas. Type locality: Bill Williams Fork, Ariz. One specimen. August, 1903, F. H. Snow.

Chelonus texanoides, n. sp.

With the form of *C. texanus*, to which this species is related.

FEMALE.—Length, 5 mm. Head dull; face shining, face except the clypeus, front, vertex, occiput and cheeks almost uniformly rugulose and somewhat striated; clypeus smooth, closely punctured, the punctures small and not deep, an-

terior margin of the clypeus impunctate; scape rather clavate, pedicellum shorter than wide, first joint of the flagellum a little longer than the second joint, nearly as long as the scape. Antennae twenty-six jointed. Thorax dull, except the metanotum, which is rather shining; mesonotum irregularly reticulate, pleura regularly, distinctly reticulate, mesonotum with coarse longitudinal striae on the superior face and diverging striae on the posterior face, the surface between the striae uneven, lateral spines blunt, prominent, diverging; neurulation characteristic, the second abscissa of the radius straight, forming an obtuse angle with the first abscissa; membrane hyaline, costal nervure pale brown, median, submedian and basal nervures testaceous, other nervures and stigma dark brown. Abdomen dull, reticulate, but more moderately than the pleura; basal third of the abdomen with two raised lines that diverge basally and are obsolescent anterior to the basal third of the segment. Uniformly sericeous, the pubescence short and in no place hiding the tegument. Black; anterior femora testaceous, tinted with ferruginous; middle femora ferruginous, black at base; anterior tibiae and tarsi dull testaceous, somewhat infuscated, terminal joints blackish; posterior femora ferruginous, tibiae yellow and ferruginous, fuscous at base and apex, posterior tarsi at base and spurs pale yellow, apex of metatarsus and succeeding tarsal joints blackish; abdomen black at base, beyond the black are two testaceous spots separated by a ferruginous broad line which is continuous with the ferruginous color of the remaining portion of the abdomen; abdomen at apex somewhat infuscated.

Type: University of Kansas. Type locality: Bill Williams Fork, Ariz. One specimen. August, 1903, F. H. Snow.

Chelonus nucleolus, n. sp.

FEMALE.—Length, 4 mm. Head dull, minutely, rugulose sculptured; clypeus as in the preceding species. Antenna broken. Thorax dull; mesonotum partly obscurely reticulate, partly somewhat shining, rather smooth and minutely sculptured; scutellum, pleura and metathorax reticulated, the latter somewhat shining; the metanotum has two longitudinal ridges rather widely separated, the space between about one-half as great as the space to each side; wings as in the preceding species, the dark nervures and stigma paler. Sericeous as in the preceding species. Abdomen finely rugulose and somewhat striate on basal third, the diverging raised lines on the basal third indistinct. Black; mandibles castaneous except at apex and base; trochanters pale and dark brown; tibiae of anterior legs pale brown, yellowish, dark brown on basal half; middle tibiae uniformly yellowish, tinted with brown; posterior tibiae dark brown at base and on greater part of apical half yellowish, between tarsal joints yellowish tinted with brown, apical joints fuscous; basal third of abdomen with a clearly defined broad testaceous band, extreme base of abdomen dark brown.

Type: University of Kansas. Type locality: Oak creek canyon, Arizona. One specimen. August, 1902, F. H. Snow.

Chelonus exogyrus, n. sp.

FEMALE.—Length, 4 mm. Head dull, rugulose, reticulate; cheeks rather shining and striate; clypeus as in the preceding species; scape a little longer than the first joint of the flagellum, pedicellum wider than long. Antennae twenty-six jointed. Thorax dull, rather coarsely reticulate; pleura somewhat shining; metanotum with two longitudinally arranged, oblong, rough, shining spaces bounded by salient raised lines, posterior face of metanotum with radiating ridges that are obsolete near the apical edge; lateral spines as in the preceding species; wings as in 653. (?) Abdomen dull, delicately rugulose and reticulate; basal half rather striate, basal raised lines not distinct, diverging as usual.

Black; mandibles castaneous, black at base and apex; coxæ and trochanters black; anterior legs yellowish ferruginous, femora black at base, tarsi blackish at apex; middle legs like the anterior pair, but basal half of femora black and all tarsi except basal two-thirds of metatarsi blackish; posterior femora ferruginous, basal half black, tibiæ yellowish ferruginous, basal and apical fifths blackish; tarsi blackish except basal two-thirds of metatarsus which is yellowish; a band posterior to the basal fifth of the abdomen and as long as the basal fifth, divided nearly into three equal parts by two semicircular lateral spots, one bordering on each lateral edge of the abdomen and curved inward, the space between these spots rather brownish. Sericeous as in the preceding species.

Type: University of Kansas. Type locality: Bill Williams Fork, Ariz. One specimen. August, 1903, F. H. Snow.

Melanobracon montivagus Cresson.

One specimen with the impressions on the second segment shallow; therefore, not typical.

Manitou Park, Colorado; August, 1891. F. H. Snow.

Cardiochiles explorator Say.

Colorado Springs, Colo., 5915 feet; August, 1894. E. S. Tucker.

Crassomicrodus fulvescens Cresson.

Specimen with the first abscissa of the cubitus rather distinct, not decidedly obsolescent.

Colorado Springs, Colo., 5915 feet; August, 1894. E. S. Tucker.

Crassomicrodus? medius Cresson.

Colorado Springs, Colo., 5915 feet; August, 1894. E. S. Tucker.

Crassomicrodus nigricaudus, n. sp.

MALE.—Length, 10 mm. Head shining; cheeks indistinctly, sparsely punctured; front with a deep depressed area that is rugose; face minutely sculptured and closely punctured, the punctures small and shallow, a low oval elevation a little below and between the antennæ; clypeus polished, smooth and impunctate anteriorly, punctate posteriorly; scape clavate, pedicellum wider than long, first joint of the flagellum as long as the scape. Antennæ thirty-two jointed. Thorax, except the metathorax, smooth and polished; the segment of the pleura immediately beneath the tegulæ dullish, and closely punctured with small punctures; dorsulum with the parapsidal grooves distinct, medially with a longitudinal narrow welt that extends posteriorly nearly to the junction of the parapsidal grooves; scutellum with sparse moderately large punctures; pleura of metathorax closely punctured; metanotum rugose; spiracles ovoid, nearly round; wings typical; claws with a short tooth half-way within from apex or claw. Abdomen polished and smooth. Thinly sericeous, with yellowish pubescence, pleura partly bare. Black; basal half of antennæ brown, apical half blackish; upper third of prothorax and dorsulum castaneous; basal half of the abdomen and the legs, excepting tarsi, brownish testaceous, the legs inclining to testaceous, tarsi honey color, claws dark brown; wings yellowish, apical half infuscated, nervures and stigma testaceous, except in the infuscated region, where they are dark brown.

Type: University of Kansas. Type locality: Colorado Springs, Colo., 5915 feet. One specimen. August, 1894. E. S. Tucker.

Another specimen, the paratype, from the same place and with the same data as the type, has only the base of the scape and pedicellum brownish and a brownish spot on each side of the dorsulum; there is also a slight difference in the sculpture of the metathorax.

Family ICHNEUMONIDÆ.

Phygadeuon (*Bathymetis*) *spinicoxus*, n. sp.

Very conspicuous on account of the spined posterior coxæ.

FEMALE.—Length, 6.5 mm. Head shining, somewhat dull; face rather sparsely punctured, elevated between the insertion of the antennæ and clypeus; clypeus sparsely punctured, not separated from the face posteriorly by a groove; malar space about as high as half the width of the mandibles at base; mandibles distinctly bidentate, the lower tooth distinctly shorter than the upper tooth; ocelli forming a low triangle, distance between posterior pair a little greater than the distance between lateral ocellus and nearest eye margin; front, vertex and cheeks almost uniformly punctured, the punctures thereon well separated; antennæ twenty-eight jointed, second joint of the flagellum apparently a little longer than the first, and about as long as the scape or a little shorter. Thorax shining; dorsulum with well-separated punctures, parapsidal grooves present and distinct only on the anterior fourth of the segment; scutellum sparsely punctured, polished; superior face of the metathorax with the basal area practically crowded out and the areola more than a semicircle, posterior with three areas, the petiolarea defined by moderate raised lines, below transversely wrinkled, forming a shallow, broad channel that is as wide as the areola at base and apex and not much wider in the middle, the raised lines or ridges bounding the posterior face nearly produced into sharp angles a little below the middle of the segment, spiracles circular and nearer to the raised line separating the lateral areas than to the suture between metanotum and metapleura, connected with the lateral suture by a straight raised line; metapleura sculptured very much like the mesopleura; posterior coxæ with a strong tooth below near the apical end, pointed inward and backward, posterior femora a little more than three times as long as broad, the posterior tibiæ not much dilated at apex; wings tinted with smoky, the stigma and nervures very dark brown, nearly black; areolet pantangular, the sides nearly of equal length, the discocubital nerve not broken, the transverse median nerve interstitial; the transverse median nerve in the posterior wings broken a little below the junction of the basal with the middle third. Abdomen shining, indistinctly punctured; the second segment with a transverse impressed line in the middle and at base a transverse groove or channel; ridge of the petiole not extending uninterrupted to the apex of the segment. Inconspicuously covered with short, silvery pubescence which is longest and most apparent on the metathorax. Ferruginous; sutures of the thorax more or less black; mandibles brown at apex, edge of antennal foveæ dark brown; antennæ with the first ten joints brownish testaceous, joints 11, 12 and 13 more or less whitish, the joints beyond dark brown; four anterior legs more or less testaceous.

Type: University of Kansas. Type locality: Magdalena mountains, New Mexico. August, 1894, F. H. Snow.

Paniscus geminatus Say.

Female, with the lateral transverse carinæ near apex of metanotum wanting and the transverse striæ of the metanotum obsolescent.

Willow Park, Colo., 7500 to 8000 feet; June, July, 1892, V. L. Keillogg.

Rhyssa persuasoria Linn.

Manitou Park, Colo.; August, 1891, F. H. Snow.

Cryptus (Habrocryptus?) robustus Cresson.

Female. Willow Park, Colo., 7500 to 8000 feet; June, July, 1892, V. L. Kellogg.

Female. Manitou Park, Colo.; August, 1891, F. H. Snow.

The former specimen has the abdomen part rufous on the apical half; the latter has the abdomen, except petiole, almost entirely rufous.

Hemiteles (Diaglypta?) manitouensis, n. sp.

MALE.—Length, 5 mm. Head shining and distinctly punctured; face closely punctured; clypeus not separated from the face by a suture and sparsely punctured; malar space about as high as the mandibles are broad at base and sparsely punctured; front, vertex and cheeks polished and sparsely punctured, the punctures on the cheek sparser than on the front, those on the front sparser than on the clypeus; ocelli almost forming an equilateral triangle, distance between the posterior ocelli a little less than the distance between the eye margin and nearest ocellus; scape and pedicellum together a little shorter than the first joint of the flagellum. Thorax shining; dorsulum and mesopleura polished, the dorsulum with the parapsidal grooves impressed only near the anterior margin, the surface sparsely, indistinctly punctured; mesopleura sparsely, rather distinctly punctured, the short transverse fovea adjoining the middle of the posterior margin of the mesopleura present, the cryptine groove distinct, oblique, extending from below the mesopleural mesosternal edge anteriorly to above this edge posteriorly and near the posterior margin of the mesopleura; metanotum rugose, distinctly areolated, the basal area practically crowded out by the high and short areola which is nearly twice as broad as long, and rather imperfectly hexagonal, the petiolarea is nearly twice as long as broad and occupies the greater portion of the middle fourth of the posterior face of the segment, the lateral basal areas large and triangular; metapleura partly polished and sparsely punctured, partly rugose; wings slightly brownish, nearly clear, stigma rather pale brown, the nervures dark brown; transverse cubitus about twice the length of the first abscissa of the cubitus beyond the transverse cubitus; second abscissa of the cubitus beyond the transverse cubitus equal to the length of the transverse cubitus, the first abscissa of the cubitus beyond the transverse cubitus is as long as the flagellum is wide at base; the discocubital nervure with a trace of a stump of a vein in the middle; the transverse median nervure in the anterior wings received by the median nervure a little beyond the insertion of the basal nervure; transverse median nervure in the posterior wings broken a short distance below the middle. Abdomen shining; petiole with the basal two-thirds constricted rather suddenly, parallel-sided or nearly and throughout not much wider than one-half the width of the petiole at apex, the apical margin of the petiole distinctly, longitudinally striate; the segments beyond the petiole smooth and apparently without sculpture. Covered with inconspicuous whitish pubescence, the pleura appearing bare. Black; femora and tibiae of anterior and middle legs almost entirely brownish testaceous, the tarsi thereof more or less fuscous; posterior legs with the femora and tibiae almost entirely ferruginous, the femora brownish above in part, the tibiae brownish at base and apex, the tarsi thereof entirely dark brown; second, third and greater part of fourth abdominal segments ferruginous, the succeeding segments dark brown with pale margins.

Type: University of Kansas. Type locality: Manitou, Colo., 6629 feet. August, 1894, E. S. Tucker.

Ichneumon (*Probolus*) *flavofacialis*, n. sp.

Superficially related to *I. pedalis* but apparently near to *I. similis*.

MALE.—Length, 13 mm. Head shining; face and cheeks closely punctured, the cheeks less distinctly and less closely punctured than the face; clypeus almost impunctate and smooth, bearing only a few good-sized punctures and some scattered minute punctures; malar space a little higher than the mandibles are broad at base (antennæ broken); scape and pedicellum together as long as or a little shorter than the first joint of the flagellum. Thorax shining; the dorsulum closely punctured, the punctures adjoining or nearly, parapsidal grooves faintly, broadly impressed near the anterior margin; punctures of the mesopleura of about the same size as those on the dorsulum and as close together; punctures practically obliterated, areola rugose, nearly twice as wide as long, with the of the scutellum well separated, rather sparse; metanotum with the basal area sides almost parallel, petiolarea not defined by raised lines but distinguished from the adjoining areas by the difference in sculpture, the petiolarea being rather finely rugulose or coarsely granular, nearly as wide at apex as at base, the lateral areas rugose and more like the areola in sculpture, the basal lateral areas are sculptured very much like the petiolarea; the metapleura rugoso-punctate; wings distinctly brownish, stigma pale brown, costal margin dark brown, nervures reddish brown; areolet with the first cubital side and the transverse cubiti of equal length, the radial side a little more than half the length of the cubital side. Petiole shining, with the constricted portion rather coarsely sculptured, almost rugosopunctate, the broad portion more dullish and rather finely rugulose, longitudinally divided into three almost equal parts by two distinct ridges; the remaining segments dull, with shallow adjoining punctures, apical segments shining, with the punctures separated and of a different type. Black; face below antennæ, exclusive of the malar spaces, almost entirely yellow, the black of the front extending around the insertion of the antennæ, forming a transverse black area immediately below the antennal foveæ, from this area a band is prolonged down the middle of the face nearly to the base of the clypeus; clypeus anteriorly with a pale brown spot, labrum brown at base, mandibles yellow only along the superior margin, anterior legs, except coxæ and trochanters, middle and posterior legs, except coxæ and basal trochanters, more or less ferruginous; the posterior legs with the tibiæ almost black on the apical fourth, the tarsi fuscous.

Type: University of Kansas. Type locality; Manitou Park, Colo. August, 1891, F. H. Snow.

Ichneumon (*Barichneumon*) *egregiafacialis*, n. sp.

Very like the preceding, from which it differs as follows:

MALE.—Length, 12 mm. Face coarsely, closely punctured; clypeus with sparse large and small punctures; vertex and cheeks with well-separated punctures; antennæ forty-five jointed, scape and pedicellum together a little longer than the first joint of the flagellum. Dorsulum with the punctures rather separated; areola about one and a half times as wide as long, hardly quadrangular, more nearly semicircular, with the posterior margin rather distinctly incurved, petiolarea not very perceptibly different in sculpture from the adjoining areas from which it is not separated by distinct raised lines, the petiolarea is constricted below the middle so that it is nearly twice as broad at base as at apex, the petiolarea is granular, the adjoining areas rather rugulose. The petiole of the abdomen is distinctly as broad as thick at base. The legs, excepting basal trochanter and coxæ, are almost entirely yellowish ferruginous, the posterior tibiæ and tarsi

without fuscous; face below antennæ almost entirely yellow, the yellow prolonged along the inner eye margin half-way upon the front, three longitudinal brown bands dividing the yellow above the clypeus into four parts nearly of equal width, a very dark brown, nearly black band between the clypeus and face; the clypeus with a large semicircular dark brown mark on the anterior half, this brown being prolonged back to meet the dark brown band between the face and clypeus, thus reducing the yellow of the clypeus to two elongated yellow spots; mandibles brown at apex.

Type: University of Kansas. Type locality: Manitou Park, Colo.; August, 1891, F. H. Snow.

Ichneumon (*Barichneumon*) *limbifrons* Cresson.

Manitou Park, Colo.; August, 1891, F. H. Snow.

Ichneumon (*Cratichneumon*?) *skinneri* Viereck.

Male. Bailey, Colo.; August, 1890, F. H. Snow.

Nototrachys reticulatus Cresson.

Two males. The specimens are smaller than the type and one of the specimens has paler legs. They vary somewhat in sculpture, but apparently represent at most only variations of the type, perhaps a separate race.

Oak Creek Canyon, Ariz., 6000 feet; August, 1902, F. H. Snow.

Nototrachys texanus Cresson.

Female. Differs from the type in having the shining space of the mesopleura rather coarsely punctured. Perhaps a distinct race of the Texan form.

Oak Creek Canyon, Ariz.; August, 1902, F. H. Snow.

Bassus lætarius Fab.

Oak Creek Canyon, Ariz.; August, 1902, F. H. Snow.

Glypta egregiafovea, n. sp.

Remarkable for the transverse apical fovea on the impressed abdominal segments.

FEMALE.—Length, 10 mm. Head shining or polished; face closely punctured, punctures on the front distinctly separated; cheeks somewhat excavated, polished and almost impunctate; malar space nearly as high as half the length of the first joint of the flagellum; antennæ forty-eight jointed, scape and pedicellum together a little longer than the second joint of the flagellum. Thorax shining and polished; dorsulum shining, rather closely punctured, the punctures separated and distinct; parapsidal grooves faintly indicated on the anterior half of the dorsulum; propleura rather sparsely punctured; mesopleura highly polished on the posterior half of the sclerite and impunctate, a deep pit near the posterior margin of the sclerite in the middle; metathorax not at all areolated, not even longitudinal carinæ present or indicated, the transverse carina distinct and rather low down; wings with the neuration nearly as in typical *Glypta*; *i. e.*, as in the preceding species, the first abscissa of the cubitus beyond the transverse cubitus distinctly shorter than the transverse cubitus, discocubital nervure with a slight stump of a vein before the middle. Abdomen rather sparsely, closely punctured; first segment with two short converging carinæ anteriorly, the carinæ not extending to the middle, the surface between highly polished, smooth impunctate; oblique impressions on the second and third abdominal segments forming an almost equilateral triangle with the transverse impression across the segment near the apex; the pattern formed by the impressions on the fourth

segment nearly the same as that on the third, but on the fourth segment the impressions are not so distinct and the punctures are smaller and closer together; ovipositor a little longer than the abdomen. Black; clypeus anteriorly, large spot on basal half of mandibles, tubercles, tegulae, base of wings, anterior coxae and anterior trochanters white or whitish; otherwise the legs are brownish testaceous, except as follows: The claws are brown, posterior tibiae and tarsi brownish to a great extent, posteriorly the posterior tibiae are whitish, except a brown band near the base and a brown band at apex, posterior tarsi pale at base, the metatarsus with the basal fourth pale; ovipositor of the usual color. Middle trochanters also somewhat whitish.

Type: University of Kansas. Type locality: Oak creek canyon, Ariz., 6000 feet. August, 1902, F. H. Snow.

Pimpla annulipes Brulle.

Oak creek canyon, Ariz.; August, 1902, F. H. Snow.

Pimpla pedalis Cresson.

Oak creek canyon, Ariz.; August, 1902, F. H. Snow.

Cryptus (*Mansa*?) *politicallypterus*, n. sp.

Generically also like *Opisoxestus*, except in length of submedian cell and mesonotal furrows, and in the character of the metathorax. Very like the Cressonian interpretation of *C. calipterus* Say, from which it differs in the more separated sculpture, the shining integument, and in the absence of a transverse carina on the metanotum.

MALE.—Length, 11 mm. Head lengthened; face dullish, closely sculptured, clypeus and supraclypeal space distinctly elevated; front, vertex and cheeks more shining, the cheeks and anterior margin of clypeus especially so; space between lateral ocelli greater than the space between a lateral ocellus and the anterior ocellus, less than the distance between lateral ocellus and nearest eye margin; malar space higher than the mandibles are broad at base, about as high as half the length of the first joint of the flagellum; antennae thirty-nine jointed, scape very broad, together with the pedicellum a little shorter than the first joint of the flagellum. Thorax rather shining; dorsulum with the parapsidal grooves rather shallowly impressed on the anterior half of the sclerite, punctures separated, but not far apart, minute, and rather inconspicuous; scutellum rather strongly punctured in comparison with the dorsulum; pleura with distinct, separated punctures on a shining surface, those of the mesopleura most distinct, the punctures of the metapleura almost adjoining; metanotum separated from metapleura by a shallow furrow in which there is no raised line, metanotum punctured and shining nearly like the metapleura but uneven, the superior face partly flat, the posterior face broadly, shallowly excavated; wings colored as in *calipterus*; the areolet pentangular, the radial side and the transverse cubiti of nearly equal length, the first cubital side as long or a little longer than the first transverse cubitus, the second cubital side a little more than half the length of the first cubital side; transverse median nervure in posterior wings broken a little below the middle. Abdomen smooth and shining. Head and dorsulum covered with short, rather abundant, golden pubescence; abdomen pubescent, much like the face and dorsulum; clypeus in part and metathorax with long, erect pubescence of a golden tint; antennae dull and rather densely covered with short pubescence; pleura with erect, rather long, inconspicuous pubescence. Rufotestaceous; inner eye margins yellowish; mandibles at tip, claws and apical tarsal joint more or less brown; abdomen, except petiole, and antennae to a great extent dark ferruginous, apical fourth of antennae brownish; posterior legs

ferruginous to a great extent, the tibiae thereof almost black, except the basal third, tarsi of posterior legs, excepting the apical joint, almost entirely yellow, four anterior legs testaceous.

Type: University of Kansas. Type locality: Bill Williams Fork, Ariz. August, 1903, F. H. Snow.

Pezomachus homalomoides, n. sp.

MALE.—Length, 4 mm. Head dullish; cheeks shining, especially below, apparently impunctate; face very dull, closely, minutely sculptured; clypeus shining, with a few rather distinct punctures; malar space about as high as the mandibles are broad at base; antennae twenty-seven jointed, scape and pedicellum together distinctly shorter than the first joint of the flagellum. Thorax dullish; dorsulum very closely sculptured, with only the faintest indications of parapsidal grooves; mesopleura sculptured very much like the dorsulum, traversed by an oblique, rugulose groove, beneath which the sclerite is to a great extent smooth and polished, the upper sculptured area traversed obliquely by a rugulose linear space that is apparently not impressed; areola hexagonal, the lateral angles below the middle, the upper sides therefore longer than the lower sides, base slightly narrower than apex; basal area not very distinct, nearly quadrate; petiolarea similar in outline to the areola, about as long as the areola and basal area together; metapleura minutely rugulose; wings faintly brownish, stigma and nervures dark brown, stigma with the basal fourth whitish; areolet open behind. If complete it would apparently be pentangular; first abscissa of the radius a little less than one-half the length of the second abscissa; the transverse cubitus about one-half the length of the first abscissa of the radius; first abscissa of the cubitus beyond the transverse cubitus about one-half the length of the transverse cubitus, the second abscissa of the cubitus sinuate at base, nearly straight; second abscissa of the discoidal nervure, the co-called first recurrent nervure, about one-half the length of the true recurrent nervure; discocubital nervure imperfectly broken by the faintest indication of a stump of a vein in the middle; transverse median nervure slightly beyond interstitial, almost exactly interstitial; transverse median nervure of the posterior wings broken where the middle third joins the lower third. Abdomen dullish; the petiole especially dull, rugulose longitudinally, so on the apical half, and nearly distinctly striate; second abdominal segment rugulose, the succeeding segments smooth. Covered with very short whitish pubescence that is nowhere very distinct. Black; scape and pedicellum, mandibles, except tips which are brown, and legs brownish testaceous; apical margin of second abdominal segment and third almost entirely testaceous; flagellum dark brown; part of second abdominal segment not mentioned brown with some blackish.

Type: University of Kansas. Type locality: Oak creek canyon, Ariz. August, 1902. F. H. Snow.

Hemiteles (*Diaglypta*?) *laphroscopoides*, n. sp.

MALE.—Length, 4 mm. Head shining; face minutely sculptured; cheeks smooth and polished, apparently without sculpture of any kind; malar space distinctly higher than the mandibles are broad at base; antennae twenty-three jointed, the joints distinctly separated, scape and pedicellum together a little shorter than the first joint of the flagellum. Thorax, except the metathorax, polished; dorsulum with rather distinct parapsidal grooves near the anterior margin; mesopleura with an oblique narrow groove on the lower half, the groove almost bisecting the lower half transversely and not attaining the posterior border, a little above the middle of the posterior half of the mesopleura is a short,

transverse impression which joins the posterior border of the sclerite; basal area broader than long, areola and petiolarea confluent, parallel-sided, about four times as long as wide, in part coarsely, transversely wrinkled, nearly striate and shining, lateral areas dull rugose; metapleura dull, minutely sculptured; wings faintly brownish, nervures and stigma entirely brown, the stigma paler than the nervures; neuration almost exactly as in *Homalomma aloga*, the areolet completed, pentangular, not the slightest trace of a stump of a vein to break the discocubital nervure; transverse median nervure of posterior wings faintly broken a little below the middle. Abdomen almost entirely smooth and shining; the petiole with a fine raised line on each side, very inconspicuously covered with short whitish pubescence. Black; mandibles and legs to a great extent almost rufous, tips of the mandibles and tarsi brownish, coxæ of posterior and middle legs black, basal trochanters of middle and posterior legs strongly brownish; second abdominal segment brownish, the third segment, except along the apical margin, yellowish.

Type: University of Kansas. Type locality: Oak creek canyon, Ariz., 6000 feet. August, F. H. Snow.

Ichneumon (Eurylabus) arizonensis, n. sp.

Superficially like *I. navus* and allied species.

FEMALE.—Length, 10 mm. Head shining; face closely punctured, the punctures adjoining or nearly, prominent elevated between the antennæ and base of clypeus, the elevation separated from the sides of the face by shallow grooves; clypeus with coarse, sparse, very distinct punctures, much larger than the punctures on the face, the anterior margin somewhat turned up, regular; malar space as high or a little higher than the mandibles are broad at base; front, vertex and cheeks almost uniformly, closely punctured, the punctures on these parts smaller and closer than on the face; antennæ thirty-four jointed, the joints of the flagellum subequal, the first joint and pedicellum combined about two-thirds the length of the scape. Thorax mostly shining, partly dull; dorsulum closely punctured, the punctures adjoining or nearly and to some extent confluent, giving a striate appearance; parapsidal grooves very faintly indicated on the anterior third; propleura with distinct separated punctures on the upper portion, below the surface is closely transversely striate punctate; mesopleura rather closely punctured and somewhat striate, on the posterior half of this sclerite a little above the middle is a transverse impression that looks like two pits, one very shallow, the other and posterior one deep; the scutellum shining, sparsely punctured, immargined; postscutellum polished like the scutellum, apparently impunctate; metathorax dull; superior face of the metanotum with apparently no basal area, the areola occupying nearly all of the middle of the superior face for a width as great as that of the scutellum, about one and a half times as long as wide; posterior face of the metathorax with three distinct areas, the petiolarea nearly parallel-sided and as broad or a little broader than the areola, the lateral areas of the posterior face bounded by strong, coarse ridges, a little above the middle of each side of the posterior face the groove just mentioned is produced into a more or less short, sharp tooth; metapleura very closely punctured, giving a rugulose appearance; wings with distinct yellowish-brown tinge, the stigma nearly black, nervures very dark brown, excepting the second transverse cubitus and the terminal abscissæ of the cubitus and subdiscoidal nervures which are more or less testaceous; areolet pentagonal, the first cubital side and the transverse cubiti of equal length, the second cubital side a little shorter than the first and a little longer than the radial side, only the slightest trace of a stump

of a vein on the discocubital nervure. Abdomen mostly dull; petiole with lateral ridges that just attain the spiracles, basal third of the petiole largely polished and without sculpture of any kind, the middle and apical thirds of the segment minutely roughened and rather indistinctly, longitudinally striate; the second segment very closely punctured with small, shallow, rather indistinct punctures that give a dullish appearance; the following segments smooth, more shining and apparently impunctate and devoid of appreciable sculpture. Covered with short, inconspicuous, whitish pubescence. Black; joints 10 to 17, inclusive, of the antennæ yellow, the ninth joint partly yellow; orbits, from a little back of the middle of the top of the eye to a little below the insertion of the antennæ within, with a narrow yellow band; superior margin of the prothorax interrupted in the middle, a transverse band below the tegulæ, basal two-thirds of the anterior tibiæ externally, basal half of the middle tibiæ and a little more than the basal third of the posterior tibiæ white; anterior tibiæ beneath, the apical third entirely and the tarsi of anterior legs brown.

Type: University of Kansas. Type locality: Oak creek canyon, Ariz., 6000 feet. August, 1902, F. H. Snow.

Amblyteles hudsonicus Cresson.

One female. Oak creek canyon, Ariz. August, 1902, F. H. Snow.

Ichneumon (*Barichneumon*) *humphreyi*, n. sp.

This might be referred to *I. ferrugator* Kirby, but that is said to have distinct lateral spines or teeth on the metathorax.

MALE.—Length, 14 mm. Head shining; face closely, distinctly punctured, the punctures near the antennæ rather confluent and apparently between striæ; punctures of the cheeks and clypeus more separated than the punctures on the face; malar space about as high as the mandibles are broad at base; scape and pedicellum together as long as the first joint of the flagellum, antennæ forty-three jointed. Thorax mostly shining; dorsulum and mesopleura shining, with separated punctures, many of the punctures separated like the punctures of the clypeus; scutellum more sparsely punctured than the middle of the dorsulum; metathorax dull rugulose, the metapleura excepted where the surface is shining and the punctures close together, adjoining or nearly, basal area of the superior face of the metathorax nearly obliterated, areola distinctly broader than long, rather horse-hoof shaped, but nearly as wide at apex as at base, the petiolarea indistinctly or not at all defined, so it appears to occupy all of the posterior face of the metathorax, the lateral areas not well separated from each other; wings strongly brown, stigma and nervures dark brown; the pentangular areolet with the transverse cubiti and first cubital side of equal length, the radial side two-thirds or a little more the length of the first transverse cubitus and equal or very nearly to the length of the second cubital side. Abdomen dull; petiole rather shining, not coarsely but somewhat longitudinally sculptured, the broad apical portion very uneven, produced into distinct elevations; the succeeding segments with rather distinct adjoining punctures, the apical segments shining with the punctures rather separated and more indistinct than elsewhere. The pubescence is whitish and thin, nowhere very conspicuous, most abundant and apparent on the dorsulum and metathorax. Black; legs, except coxæ and trochanters which are black, abdomen, except petiole which is black, almost entirely yellowish ferruginous to ferruginous; base and sides of second abdominal segment and base of third with blackish, the posterior femora dark brown at apex.

Type: University of Kansas. Type locality: Humphrey's Peak, at base, 9500 feet, Arizona. August, 1902, F. H. Snow.

Ichneumon (Barichneumon) nigrosignatus, n. sp.

Very like *I. subcyaneus*, of which it may be a race or nearly a variety.

MALE.—Length, 8 mm. Head shining; face with well-defined, distinctly separated punctures; clypeus with very sparse distinct punctures; cheeks more closely, less distinctly punctured than the face; width of the mandibles at base distinctly a little greater than the malar space is high; antennae thirty-five jointed, the scape and pedicellum together as long as the first joint of the flagellum together with one-third the length of the second joint. Thorax entirely shining; dorsulum, meso- and metapleura almost uniformly closely punctured; scutellum closely punctured; areola ill defined, nearly one and a half times as broad as long, basal area ill defined and if anything a little longer than the areola, lateral and posterior carinae strong, the petiolarea sharply defined, nearly parallel-sided and forming a shallow channel which is wrinkled, the lateral areas not all present, but the areas that are present are sharply defined and mostly wrinkled. Wings almost clear, faintly blackish, stigma and nervures almost black; the areolet with the same proportions as the areolet in *I. humphreyi*. Abdomen shining, though somewhat dullish owing to the close punctuation; the petiole very even, with hardly any elevations near the apical margin, finely longitudinally striate in the middle. Covered with pubescence as in *humphreyi*. Head, thorax and first abdominal segment black or nearly, with the following pale marks: A triangular spot surmounting each eye at the margin, continued along the eye margin within as a narrow band to the lower margin of the antennal fovea, continued below this point as a broad band to the anterior margin of the clypeus, leaving a black band with sinuate margins and as wide as the middle third of the clypeus in the middle of the face, a long mark on each scape beneath, a large spot on basal half of mandibles, a posterior orbital line extending from the middle of the malar space to above the middle of the eye, superior margin of prothorax, except in the middle, tegulae in part, a transverse line beneath, a longitudinal mark on the anterior face of the mesothorax, coxae and trochanters of anterior and middle legs with marks, femora and tibiae of anterior and middle legs in front, faint whitish, citron yellow to whitish, otherwise the legs are dark brown or black, except the anterior tarsi, which are pale brownish beneath; abdomen dark blackish cyaneus.

Type: University of Kansas. Type locality: Oak Creek canyon, Ariz. August, 1902, F. H. Snow.

Ichneumon (Barichneumon) citrinifacialis, n. sp.

Superficially like *I. nanus*, *scibilis* and *mucronatus*, readily distinguished from *nanus*, to which it is structurally related, by the distinctly defined petiolarea, which is lacking in *nanus*.

MALE.—Length, 6 mm. Head shining; face and cheeks rather closely, distinctly punctured; clypeus sparsely punctured; malar space nearly as high as the mandibles are broad at base; scape and pedicellum together a little longer than the first joint of the flagellum (remainder of flagellum broken off); ocelli somewhat more separated than usual and approaching the equilateral-triangle disposition. Thorax shining; dorsulum, mesopleura and metapleura with distinct punctures, more separated on the dorsulum than elsewhere, on the pleura almost contiguous; scutellum rather indistinctly, sparsely punctured; metanotum rather distinctly areolated, the basal area not well defined and distinctly broader than long; areola not sharply defined, nearly twice as broad as long, and of the lunate type, petiolarea broader at base than at apex, but nearly parallel-sided, forming a shallow channel, which is indistinctly, transversely wrinkled or

striate; wings transparent, nearly colorless, tinted with brown, stigma pale brown, nervures dark brown; areolet with nearly the same proportions as in the preceding species, the radial side, however, distinctly shorter than the second cubital side, which is about one and a half times as long as the radial side of the areolet. Abdomen with the first segment smooth and polished and apparently without sculpture, the succeeding segments dull, with adjoining or nearly adjoining punctures, the apical segments with indistinct and more separated punctures. Pubescence whitish and distributed as usual, very inconspicuous. Ferruginous; greater part of front with a production connecting the ocelli, greater part of propleura, anterior face of mesopleura, a transverse band beneath the wings beneath the superior border of yellow on the mesopleura, furrow in the middle of the posterior half of the mesopleura, a spot on the lower posterior corner of the mesopleura, large portion of the lower half of metapleura and the sutures around the wing, scutellum and postscutellum black; face below antennæ, greater part of mandibles, an orbital line interrupted above and broad on the lower half of the cheeks, tegulæ somewhat, transverse line beneath wing insertion, anterior and middle coxæ and trochanters, scutellum and postscutellum yellow; anterior and middle legs yellowish at the knees; scape and pedicellum beneath yellowish brown, first joint of the flagellum beneath yellowish, scape above brown, pedicellum and first joint of the flagellum brown.

Type: University of Kansas. Type locality: Oak Creek Canyon, Ariz., August, 1902. F. H. Snow.

Sub-family OPHIONINÆ.

Pristomerus appalachianus, n. sp.

Related to *P. pacificus* which has a more distinctly areolated metanotum and a shorter ovipositor.

FEMALE.—Length, 6.5 mm. Head largely shining; occiput and cheeks minutely granular, subtle, dullish; vertex, front and face almost uniformly closely punctured and shining, the punctures sparse in the middle of the face, clypeus highly polished with sparse minute punctures, mandibles shining and punctured nearly as closely as the face; scape nearly three times as long as the pedicellum, flagellum missing. Dorsulum shining, more distinctly but nearly as closely punctured as the face, parapsidal grooves indicated only on the anterior third of the dorsulum, obsolete beyond; scutellum shining, less distinctly punctured than the dorsulum; metanotum more closely punctured than the dorsulum, the areola large, hexagonal, nearly twice as long as broad, the basal ridge shorter than the apical ridge, the lateral ridge forming an obtuse angle, the side nearest the base of the segment being shorter than the remaining side, basal area quadrate, petiolarea hexagonal, transversely rugosopunctate, the ridges bounding the petiolarea of nearly equal length, lateral areas irregular but bounded by distinct ridges; propleura partly, closely punctured, partly impunctate, polished; mesopleura shining, closely punctured, obliquely, shallowly impressed; metapleura somewhat dullish compared to the mesopleura, closely punctured; wings clear, iridescent, nervures and stigma brown, first abscissa of the radius a little longer than twice the length of the abscissa between the transverse cubitus and the recurrent nervure, the lateral abscissa a little longer than the transverse cubitus, the distal portion of the cubitus beyond the recurrent nervure nearly as long as the transverse cubitus, the second abscissa of the discoidal nervure distinctly shorter than the transverse cubitus, the third abscissa of the discoidal nervure nearly as long as the transverse cubitus, discocubital cell sessile, transverse median ner-

vure interstitial, the transverse median nervure in the posterior wings slightly angled above the middle where it is broken by an indistinct nervure. Abdomen shining, segments beyond the petiole very minutely granular, very sparsely, minutely punctured; ovipositor, 4 mm. long; sheaths, 3 mm. long. Thorax and head with rather abundant, somewhat appressed pubescence, metathorax especially abundantly pubescent. Black; region where parapsidal grooves ought to be brownish; face brown, the brown extending all around the eyes, the occiput and vertex black, clypeus somewhat yellowish brown, mandibles yellow, tips dark brown; superior margin of propleura, base of petiole, segments of the abdomen beyond the second largely brownish, the abdominal segments beyond the second with a large black dorsal spot; legs brown to brownish testaceous, posterior coxae blackish within; base of wings yellow; ovipositor brown, apical third brownish testaceous.

MALE.—Length, 6 mm. Very much like the female; mandibles and propleura brownish, abdomen almost entirely brown; transverse median nervure in posterior wings broken below the middle in the same way as the transverse median nervure is broken in the posterior wing of the female. Antennae thirty-three jointed.

Types: University of Kansas. Type localities: Female from Morton county, Kansas, 3200 feet; June, 1902, F. H. Snow. Male from Sedgwick county, near Wichita, Kan., in vineyard; September, 1895, E. S. Tucker.

Pristomerus appalachianus var. *dorsocastaneus*, n. var.

Similar to the preceding, but differs as follows: Head more brown, propleura entirely brown, dorsulum almost entirely brown, the male with a black spot adjoining the anterior margin of the dorsulum, stigma very dark brown, pale yellowish brown at base; transverse median nervure in posterior wings of the male broken as in the female which has it broken as in the female of typical *appalachianus*.

Types: University of Kansas. Type locality, male and female: Douglas county, Kansas. August, E. S. Tucker.

Thersilochus snowi, n. sp.

Related to *hyalinipennis*, but smaller and with a distinctly different sculpture and structure of the metanotum, etc.

FEMALE.—Length, 9 mm. Head polished, distinctly punctured, the punctures rather closely arranged, sparse along the eye margin and in the middle of the face; clypeus distinctly convex, more regularly punctured than the face; the cheeks sharply margined; antennae twenty-seven jointed. Thorax shining; dorsulum more coarsely punctured than the face, the parapsidal grooves replaced by broad shallow depressions that extend about half-way back on the dorsulum, the depressed portion almost rugosopunctate; scutellum not so coarsely, more closely punctured than the dorsulum; propleura rather sparsely punctured; mesopleura with a sharp margin anteriorly continuous with the mesosternal margin, more regularly and closely punctured than the propleura and with an oblique shallow channel that is striate with a smooth superior edge, anterior to this oblique channel is a curved channel extending from the upper portion of the anterior ridge back under the insertion of the wings; metathorax completely areolated, the basal area small quadrate, the areola horse-hoof shaped, slightly angulated anteriorly and laterally, the posterior margin strongly curved in, almost arcuate, areola distinctly punctured, the punctures nearly adjoining, lateral carinae of the petiolarea angulated below the middle, the petiolarea with large, almost adjoining punctures, and somewhat striate, the striae apparent only along the lateral

carinae and at the apex of the area, lateral areas similar in sculpture to the areola, except the apical lateral area adjoining the petiolarea which is rugose; wings hyaline, nervures brownish testaceous, stigma dark brown, yellow at base, the nervures of the basal third of the wing largely yellow, first abscissa of the radius about one and a half times as long as the transverse cubitus, the second recurrent nervure almost interstitial, therefore the first abscissa of the cubitus beyond the transverse cubitus nearly obsolete, the second abscissa beyond the transverse cubitus about two-thirds the length of the transverse cubitus, transverse median nervure interstitial, the first recurrent nervure about one-fourth the length of the second recurrent nervure. Abdomen with the first segment shining, the second and succeeding segments dullish or subtle, sparsely, minutely punctured; ovipositor 4.5 mm. long, covered with short whitish pubescence that is uniformly distributed and not sufficiently abundant to be apparent superficially. Black; a yellow orbital line broken along the upper and lower eye margin, mandibles brown and yellow, tegulae, anterior femora and tibiae, trochanters partly, base of posterior tibiae and apex of posterior femora all yellow or yellowish, posterior tibiae whitish above, except at apical third where the upper surface of the tibiae are brownish, and at base where a brownish band separates the basal yellow from the whitish, anterior legs, excepting coxae, largely brownish, tarsi of posterior legs brown, segments of the abdomen beyond the second brownish testaceous with a black spot at base of dorsal and ventral segments; ovipositor brown, sheaths black.

Type: University of Kansas. Type locality: Hamilton county, Kansas, 3350 feet. One specimen. June, 1902, F. H. Snow.

Thersilochus mimeticus, n. sp.

Mimics the *T. delicatus* Cresson, which is not congeneric.

FEMALE.—Length, 5 mm. Head shining, cheeks rather subtle; face minutely, closely punctured; cheeks sparsely, minutely punctured; clypeus shining, rather sparsely punctured; face distinctly elevated along the middle line; antennae thirty jointed. Thorax dullish, minutely, closely punctured; parapsidal groove only faintly indicated anteriorly by a very shallow impression of the tegument; scutellum sculptured almost exactly like the dorsulum; metanotum with the basal area oblong and narrow, areola longer than wide, nearly as wide at apex as at base, the apical boundary not developed, the areola apparently pentangular, petiolarea nearly twice as long as wide, the lateral boundary angulate immediately above the middle, petiolarea striatopunctate but not distinctly, areola and basal area rather rugulose, the lateral areas sculptured more like the dorsulum; mesopleura with an oblique, shallow furrow, beneath which the tegument is sculptured like the dorsulum, and above which the surface of the pleura is smooth, polished, almost impunctate; wings hyaline, stigma and nervures almost uniformly pale brown: transverse cubital nervure nearly as long as the first abscissa of the radius, first abscissa of the cubitus beyond the transverse cubitus a little shorter than one-half the length of the transverse cubitus, the second abscissa shorter, second recurrent nervure at least as long as the first abscissa of the radius, first recurrent nervure or second abscissa of the discoidal nervure about one-third the length of the second recurrent nervure, transverse median nervure interstitial. Abdomen rather shining, first and second abdominal segments finely, longitudinally striate, succeeding segments subtle, minutely, sparsely punctured. Thinly sericeous, the pubescence very short and whitish, almost uniformly abundant, not sufficiently dense to hide the tegument. Pale ferruginous; orbits, scape, clypeus and mandibles yellowish or yellow; tegulae, base of anterior wings yellow; flagellum very dark brown; venter of abdomen yellowish and

brownish testaceous; tarsi of posterior legs and tibiae at base and apex brownish, apical tarsal joint of anterior and middle legs brownish; second and third dorsal abdominal segments blackish at base, ovipositor and sheaths black or very dark brown, ovipositor tipped with brown; legs somewhat testaceous, especially the coxae and the trochanters; vertex, front and occiput largely black.

Type: University of Kansas. Type locality: Sedgwick county, near Wichita, Kan. Taken in vineyard, September, 1895, E. S. Tucker.

Thersilochus quintilis, n. sp.

Very like the preceding, of which it may prove to be the male. Length, 4.5 mm. Differs from *mimeticus* as follows: Face all ferruginous, only the mandibles yellowish, no yellowish orbital line; posterior femora, tibiae and tarsi all decidedly brownish; scutellum paler, more yellowish brown than the dorsulum, tegument around the scutellum with a rather broad border of black; postscutellum, however, largely of the same color as the scutellum; base of metanotum blackish, areola not separated from the petiolarea, the lateral ridges almost parallel, on the apical third of the metanotum the petiolarea broadens suddenly, forming an angle on each side; beyond the petiole the dorsal abdominal segments are black at base; antennae twenty-eight jointed; second recurrent nervure almost interstitial, the stump of a vein beyond the recurrent nervure about one-half the length of the transverse cubitus.

Type: University of Kansas. Type locality: Douglas county, Kansas. July, E. S. Tucker.

Thersilochus hamiltonensis, n. sp.

MALE.—Length, 5.5 mm. Head dullish; face minutely sculptured, rather sparsely, indistinctly punctured; antennae more than thirty-one jointed (tips broken). Dorsulum dull, closely punctured, the punctures not sharply defined; parapsidal groove indicated only anteriorly by shallow impressions; scutellum somewhat shining, sparsely, indistinctly punctured; metanotum with the basal area nearly obsolete, the areola if completed would be pentagonal, posterior boundary not present, areola, therefore, confluent with the petiolarea, about twice as long as wide, the lateral boundary angulated above the middle, petiolarea nearly a parallelogram, slightly angulated below the middle, transversely striate, somewhat punctured, apical lateral area rugose, areola and lateral areas all shining and more or less distinctly punctured, the areola more distinctly punctured than the lateral areas; mesopleura polished, rather closely, distinctly punctured beneath the oblique channel, which is smooth, highly polished and only rather indistinctly striate in the anterior extremity, above the channel the tegument is chiefly smooth and polished; metapleura dullish, minutely granular, rather sparsely punctured; wings hyaline, stigma and nervures pale brown; basal and apical abscissae of cubitus and apical abscissa of subdiscoidal nervure almost hyaline, transverse cubital nervure nearly half the length of the first abscissa of the radius, the cubital abscissa beyond the transverse cubitus half the length of the transverse cubitus, the abscissa beyond equal to the preceding or nearly, second abscissa of the discoidal nervure nearly one third the length of the recurrent nervure. Petiole shining, second segment dullish, very finely, longitudinally wrinkled, almost striate, segments beyonds the second dullish, sparsely, indistinctly punctuate. Head and thorax almost uniformly covered with short, whitish pubescence. Black; face yellow beneath the antennae except for a median line of black which extends half-way down between the antennae and the clypeus; clypeus, mandibles and a rather broad continuous orbital line yellow; basal joint of scape pale brownish, remainder of antennae

nearly black; dorsulum with a brownish yellow V on each side, one side of which adjoins the anterior lateral margin of the segment, the other outlines the position of the obsolete parapsidal groove, propleura with a yellowish line along the upper edge, mesopleura with a broad brownish band beneath the shallow impression which it follows; venter of abdomen yellowish, the dorsal segments beyond the second with a brown apical margin black at base; legs yellowish brown, posterior coxæ blackish at base, posterior femora chestnut brown, the tibiæ of posterior legs blackish at base and apex, the tarsi of posterior legs infuscated.

Type: University of Kansas. Type locality: Hamilton county, Kansas, 3350 feet. June, 1902, F. H. Snow.

Thersilochus egregiacolor, n. sp.

Superficially like *facilis*.

FEMALE.—Length, 9 mm.: ovipositor exerted, 7 mm. Head shining, closely, distinctly punctured; clypeus with sparse, distinct punctures; cheeks rather indistinctly, minutely punctured; antennæ thirty-nine jointed. Dorsulum with almost contiguous distinct punctures, shining, parapsidal groove represented by very shallow broad impressions on the anterior half of the dorsulum; scutellum shining, closely punctured; basal area of metanotum an acute-angled triangle, areola pentagonal, nearly twice as long as broad, the sides angled above the middle, the surface of the areola shining, rather sparsely punctured, petiolarea transversely striate, rugose at base, dullish, lateral areas and metapleura sculptured nearly like the dorsulum, the apical lateral area rugulose; mesopleura beneath and anterior to the oblique depression punctured nearly like the dorsulum, the oblique depression partly finely striate, partly smooth and polished, above the impression the tegument is smooth, shining and minutely, sparsely punctured; wings hyaline, stigma and nervures dark brown, transverse median nervure slightly basad of interstitial, recurrent nervure almost exactly interstitial, abscissa of culitus beyond the transverse cubitus about one-third as long as the transverse cubitus, first abscissa of the radius about one and one-half times the length of the transverse cubitus, second abscissa of the discoidal nervure half the length of the recurrent nervure, terminal abscissa of the cubitus, excepting the stump of a vein and terminal abscissa of the subdiscoidal cell, entirely hyaline. First abdominal segment shining, partly smooth, partly delicately striate; second segment dullish, delicately striate; succeeding segments minutely granular, subtle and minutely, sparsely punctured as in the other species of the genus. Pubescent as usual in the genus. Ferruginous; orbital line, malar space, clypeus anteriorly, mandibles except apex, and tegulæ yellow; basal joint of scape brown, remainder of antennæ dark brown, almost black; anterior and middle coxæ and trochanters with some yellow, a narrow stripe on anterior femora and tibiæ and on middle tibiæ yellowish, coxæ and trochanters of anterior and middle legs black in part, the posterior trochanters with some yellow, posterior tibiæ brown with a whitish stripe on the outer side, tarsi brown, except the first three joints of the anterior tarsi, which are rather pale brownish; metanotum at base, mandibles at apex, first and second dorsal abdominal segments almost entirely, and base of third dorsal abdominal segment black, a dark brown spot at base of succeeding segments; ovipositor chestnut brown, sheaths black.

Type: University of Kansas. Type locality: Morton county, Kansas, 3200 feet. June, 1902, F. H. Snow.

Paratype from the type locality (F. H. Snow), with the abdomen darker and mesosternum blackish.

Mesochorus noctivagus, n. sp.

Superficially like *agilis*, from which it differs in size, sculpture, and color.

FEMALE.—Length, 4.5 mm. Head shining; face somewhat dullish; cheeks closely, distinctly punctured, the punctures thereon regular, face with the orbital margins punctured nearly like the cheeks, middle of the face with a rather cordate elevation, the apex between antennal insertion, the base adjoining the clypeus, the elevated portion punctured nearly like the cheeks, between the orbital margin and middle elevated portion of face the punctures are almost adjoining and smaller than on the cheeks; clypeus polished, very sparsely punctured; antennæ over thirty-five jointed (tip broken off), possibly with one or two joints more, scape and pedicellum together distinctly shorter than the first joint of the flagellum. Dorsulum shining, somewhat dullish, parapsidal grooves represented on anterior half of dorsulum by very faint longitudinal impressions, dorsulum rather indistinctly sculptured, distinct punctures in the parapsidal region and on the greater portion of posterior two-thirds; scutellum almost polished, apparently impunctate; metathorax shining, distinctly areolated, the areolæ bounded by distinct carinæ, areola and basal area confluent, the basal area if completed would apparently be quadrate or nearly, areola if perfect would be hexagonal resembling a diamond with the acute angles cut off, lateral carina of areola angled in the middle or nearly, areola about twice as long as greatest width, smooth, almost polished; petiolarea broader than long, nearly circular, the anterior and lateral margins describing part of a circle, all the areas, except the areola, somewhat roughened; propleura shining, minutely sculptured; mesopleura polished, anterior margin punctured, the punctures not very deep, a broad impression on the inferior portion of the anterior margin, a broad impression on the middle of the posterior margin and another impression on the anterior portion of the superior margin; metapleura with closely arranged shallow punctures; wings iridescent, very faintly brownish, almost clear, stigma dark brown, the proximal and distal corners with a small pale spot, nervures blackish testaceous, first abscissa of the radius as long as the first and second transverse cubiti together, the first transverse cubitus shorter than the second, the first abscissa of the cubitus beyond the first transverse cubitus shorter than the same, the second abscissa almost the same length of the first transverse cubitus, second abscissa of discoidal nervure nearly one fourth the length of the recurrent nervure, transverse median nervure interstitial, areolet sessile, almost quadrate. First abdominal segment subsessile, polished irregularly, rather longitudinally pitted and with a shallow median longitudinal sulcus; succeeding segments polished, sparsely, minutely punctured. Thinly pubescent, the pubescence short and whitish, most abundant on the metathorax. Black; posterior orbital margin brown, anterior orbital margin cream color margined with brown; malar space, clypeus, mandibles, except tips which are brown, tegulæ and base of wings cream color or whitish; antennæ very dark brown; propleuræ brownish along the margins; legs mostly testaceous, posterior coxæ and femora somewhat ferruginous, apical tarsal joints fuscous, posterior tibiæ brownish white, fuscous at tip, metatarsus of posterior legs whitish.

Type: University of Kansas. Type locality: Lawrence, Douglas county, Kansas. At night, May, E. S. Tucker.

Agathobanchus bradleyi, n. n.

Female. Douglas county, Kansas, 900 feet.

This species was described at length in *Entomological News*, vol. XIV, pp. 144-146, 1903, by Mr. J. Chester Bradley. The two Eastern specimens upon which this description was based, four other specimens, and the above—seven

specimens in all—differ from Say's description of *Banchus æquatus* in having the second submarginal cell petiolate, quadrangular and not pentangular as in Say's species. The *Banchus æquatus* Say may be an *Exetastes* as this is now understood. In addition to the neuriation, the maculation of the nervures and the color are different from *Banchus æquatus* Say. The Douglas county specimen differs from the Eastern form as follows: Head yellow, except a broad band extending from immediately in back of the ocelli to the posterior edge of the insertion of the antennæ, the dorsulum and upper edges of the propleura chocolate brown.

Paniscus geminatus Say.

Douglas county, Kansas; September.

Limnerium perdistinctus, n. sp.

Superficially like *perdistincta*, congeneric with *obscuripes*, to which it seems to be more nearly related than to any other species.

FEMALE.—Length, 4.5 mm. Head minutely roughened; cheeks shining; face dull, face below the antennæ and lower half of cheeks with abundant silvery pubescence which, when viewed in certain lights, obscures the tegument; remainder of the head apparently bare, the pubescence inconspicuous; internal margins of the eyes nearly parallel; antennæ twenty-nine jointed, scape distinctly longer than the first joint of the flagellum, but not as long as the first joint together with half the second. Thorax almost uniformly sculptured like the face, the middle of the posterior half of the dorsulum more closely sculptured than the rest; metapleura almost appreciably, closely, minutely punctured; parapsidal grooves very faintly indicated on the anterior half of the dorsulum by nearly parallel, very narrow, longitudinal, slight impressions; mesopleura obliquely bisected by a shallow, sinuate, impressed line that is rugulose, a short impressed line at right angles to the anterior margin of the mesopleura on the lower portion of the sclerite near the mesosternum; basal half of metanotum almost triangular, the apex blunt, areola pentagonal, the sides of nearly equal length, confluent with the petiolarea, the raised line separating the two only faintly and partly indicated; petiolarea angled in the middle, or nearly, somewhat longer than twice the greatest width; areas of metanotum distinctly, more coarsely, sculptured than the dorsulum, rugulose; petiolarea almost rugose; wings clear, faintly yellowish brown, stigma pale brown, nervures dark brown, areolet quadrangular, the sides subequal, petiolate, the petiole about as long as the second abscissa of the cubitus, first abscissa of the radius about three-fourths as long as the second abscissa of the radius, transverse median nervure received a little beyond the basal nervure, the third abscissa of the discoidal nervure nearly two-thirds the length of the recurrent nervure. Abdomen dullish; basal half of the petiole shining and carinate on the sides, the tegument elevated from the spiracle of the petiole to the posterior margin of the segment, forming an indistinct carina; ovipositor exerted for a length a little greater than the width of the abdomen at apex. Abdomen rather abundantly but inconspicuously pubescent, thorax more densely pubescent than the abdomen, the pubescence very apparent only on the metathorax. Black; anterior and middle coxæ brownish; mandibles, except tips, tegulæ, base of wings, anterior and middle trochanters and distal joint of posterior trochanters yellow; femora and middle tibiæ rufous, anterior tibiæ yellowish, posterior tibiæ brownish, dark brown at base and apex; tarsi somewhat brownish, the apical joints and claws decidedly brown; abdomen with the apical margins of the segments beyond the petiole, excepting the apical

segment, rufous, sides of the segments beyond the second largely rufous, venter yellowish, ovipositor brown, sheaths black.

Type: University of Kansas. Type locality: Douglas county, Kansas. August, E. S. Tucker.

Paratype from Clark county, Kansas, 1962 feet (May, 1903, F. H. Snow), with apparently no impressions on mesopleura, the anterior tibiae paler and pale portion of posterior tibiae paler, and the rufous of abdomen nearly absent, absent, or changed to brownish. Paratype from Morton county, Kansas, 3200 feet (June, 1902, F. H. Snow), like paratype from Clark county. These specimens are $\frac{1}{2}$ to 1 mm. smaller than the type.

Limnerium sp.

Douglas county, Kansas, July, E. S. Tucker.

Ischnoscopus tæniatus, n. sp.

Related to *plena*, which differs in structure and in having the posterior coxae rufous.

FEMALE.—Length, 6.5 mm. Head and thorax to a great extent dullish and uniformly, finely roughened or granular; cheeks shining; internal margins of the eyes nearly parallel; antennae thirty jointed, scape and pedicellum together as long as the first joint of the flagellum. Dorsulum with scarcely a trace of parapsidal grooves; mesopleura with a faint, oblique channel bisecting the sclerite, above which is another indistinct, oblique impression, on the lower portion of the mesopleura on the anterior half and near the mesosternum is another short impression; metathorax rather coarsely sculptured, almost rugose, basal area apparently rectangular, almost obsolete, areola pentagonal, almost triangular, the apical sides very short, almost obsolete, apical margin only partly indicated; petiolarea broad angled below the middle, less than twice as long as the greatest width in spite of the shortened areola; metapleura more finely sculptured than the areas, apparently punctured; wings faintly brownish, almost clear, stigma and nervures dark brown, the stigma paler than the nervures, first abscissa of the radius not quite two-thirds the length of the second abscissa, areolet quadrangular, the sides subequal, petiolate, the petiole shorter than the shortest side of the areolet; transverse median nervure received beyond the basal nervure, third abscissa of the discoidal nervure more than half the length of the recurrent nervure. Abdomen dullish, petiole shining on the sides. Rather thinly pubescent with short, silvery hairs that are most abundant on the metathorax; face appearing bare superficially; ovipositor exerted over one-third the length of the abdomen. Black; mandibles, except at tip, and the four anterior legs to a great extent yellowish rufous; anterior and middle tibiae whitish posteriorly, tarsi also whitish, the tarsi of the middle legs tipped with brown, apical tarsal joint and claws of both anterior and middle tarsi brown, posterior legs with coxae and femora rufous, first joint of trochanters largely black, second joint yellow, posterior femora brown at tip, posterior tibiae whitish at base, then a narrow brown band, then a broad white band as broad as half the length of the tibia, metatarsus of posterior legs whitish on basal two-thirds, apical third brown, most of the succeeding tarsal joints whitish or pale at extreme base, otherwise dark brown; ovipositor brown.

Type: University of Kansas. Type locality: Douglas county, Kansas. July, E. S. Tucker.

Olesicampa melanerythrogastra, n. sp.

Apparently closely related to *L. (Olesicampa?) brachyura*, of which it may prove to be the male.

MALE.—Length, 7 mm. Head minutely roughened and indistinctly punctured; cheeks dullish; face dull, rather densely covered with pubescence that is tinted with golden brown; antennæ thirty-nine jointed or forty jointed, scape and pedicellum together a little shorter than the first joint of the flagellum. Thorax almost uniformly dull, finely sculptured; dorsulum with the faintest impressions to indicate where the parapsidal grooves would be impressed, area more densely sculptured and duller than the adjoining area; mesopleura with an almost triangular, smooth, shining, impressed area occupying the region above the oblique impression or groove, the area beneath closely, rather distinctly punctured, the surface between the punctures minutely roughened; metathorax distinctly areolated, the ridges separating the areas very distinct, areola and petiolarea confluent, basal area very narrow, about twice as long as wide at base, forming an acute-angled triangle, areola more than twice as long as its greatest width, the lateral ridges of the areola angled at the basal third, basal third of the areola wrinkled beyond, the surface is roughened, petiolarea angled a little above the middle, roughened and with rather coarse transverse striæ, lateral areas sculptured somewhat like the dorsulum except the apical lateral area which is rugose; metapleura rather rugosopunctate, very closely sculptured; wings pale brownish, stigma and nervures rather brownish testaceous with a blackish tinge, first abscissa of the radius a little more than two-thirds the length of the second abscissa, areolet quadrangular, petiolate, the petiole as short as the shortest side of the areolet, first abscissa of the cubitus beyond the first transverse cubitus about as long as the second transverse cubitus between the petiole and the cubitus, the first transverse cubitus between the petiole and the cubitus shorter than either of the last two sides, of the areolet mentioned, being next in size to the shortest side, discocubital nervure with a trace of a stump a little before the middle, transverse median nervure received a little beyond the basal nervure, second abscissa of the discoidal nervure nearly two-thirds the length of the recurrent nervure. Abdomen somewhat dullish, minutely, rather subtly sculptured; petiole nearly smooth, with no distinct elevated line extending from the spiracles to the posterior margin. Almost uniformly pubescent, the pubescence to a great extent of the same color as that on the face, but shorter and not so conspicuous; the smooth area of mesopleura, most of the lateral areas of the metathorax and the areola and petiolarea appearing bare. Black; scape and pedicellum ochreous beneath, brownish above; mandibles, tegulae and base of wings yellow, mandibles tipped with brown which shades from pale to dark, almost black; palpi rather ochreous; legs testaceous, the posterior pair somewhat ferruginous, claws, apical tarsal joint of anterior legs, tarsal joints of middle legs posteriorly, posterior tibiae above and tarsi all brownish; abdomen with a rufous band at apex of petiole, the remainder of the abdomen rufous, except the margins of the second segment, a broad apical margin of the third, a narrow apical margin on the fifth, the sixth dorsally and a large portion of the seventh which are black.

Type: University of Kansas. Type locality: Clark county, Kansas, 1962 feet. June, F. H. Snow.

FEMALE.—Similar to the male; petiole of areolet shorter, as long as the shortest side of the areolet or a little shorter; exerted portion of the ovipositor a little longer than the abdomen, sheaths about three-fourths the length of the abdomen; abdomen rufous, a narrow black band at apex of petiole, basal two-thirds of peti-

ole and a narrow lateral streak on the second abdominal segment black; ovipositor very dark brown, nearly black, sheaths of the ovipositor black.

Type: University of Kansas. Type locality: Clark county, Kansas, 1962 feet. May, 1903, F. H. Snow.

Amorphota relativa, n. sp.

Closely related to *L. (A.) montana*, which has the areola and petiolarea bounded laterally by distinct raised lines.

FEMALE.—Length, 7.5 mm. Head rather shining, somewhat dullish, with indistinctly impressed, separated punctures, less distinct and sparser on the clypeus than elsewhere; cheeks rather shallowly channeled; antennae thirty-six jointed. Thorax with the dorsum dullish, sides rather shining; dorsulum very dull, rather closely punctured, the parapsidal grooves hardly indicated by slight impressions anteriorly; mesopleura distinctly punctured and shining beneath the somewhat triangular impressed area which is smooth and shining and almost impunctate, the shallow channel deeply impressed in the middle, forming a pit; basal area of metanotum almost quadrate, the areola margined only at the base, the channel which occupies the areola and petiolarea shallow, its sides gently excavated, the margins not at all sharp but gently rounded, lateral areas closely pitted, almost punctured; metapleura distinctively, closely punctured and shining; wings faintly brownish, nearly clear, stigma and nervures dark brown, first abscissa of the radius a little longer than two-thirds of the second abscissa, areolet practically sessile, the petiole almost obsolete, the areolet quadrangular, the first transverse cubitus as long as the second, first abscissa of the cubitus beyond the first transverse cubitus distinctly longer than the succeeding abscissa, transverse median nervure almost exactly interstitial with the basal nervure, second abscissa of the discoidal nervure about two-thirds the length of the recurrent nervure. Abdomen uniformly dullish, very minutely, inconspicuously punctured, the petiole very smooth, no indication of a raised line between the spiracle and the apical margin; exerted portion of ovipositor half as long as the abdomen, the sheaths about a millimeter shorter. Uniformly covered with fine, short, silvery pubescence, longest and most abundant on the face and metathorax. Black; mandibles yellow, brown at tip, palpi cream color; tegulae and base of wings yellowish; anterior and middle legs testaceous, middle femora somewhat rufous, anterior and middle trochanters with the distal joint whitish or yellowish, the tibiae of the four anterior legs whitish on the outer side, tarsi pale, apical joints and claws brownish, posterior legs with the proximal trochanter largely black, the distal trochanter ochreous, femora rufous, tibiae almost whitish with a narrow brownish band near base, the apical third of the joint brown, metatarsus whitish with the apical third brown, two succeeding joints brown, whitish at extreme base, terminal joints entirely brown, all claws brown and pectinate; ovipositor dark reddish brown, translucent.

Type: University of Kansas. Type locality: Clark county, Kansas, 1962 feet. June, 1903, F. H. Snow.

Amorphota perrivalis, n. sp.

Nearly as in *L. (A.) major*, but areola partly outlined by a basal carina. Related to *L. (A.) rivalis*, which is smaller and different in various details.

FEMALE.—Length, 7 mm. Head minutely sculptured; face dull, rather rugulose, indistinctly punctured; cheeks shining, closely, indistinctly punctured; antennae thirty-four jointed, scape and pedicellum distinctly shorter than the first joint of the flagellum. Thorax uniformly dull; dorsulum with the parapsidal grooves represented by faint, rugulose, longitudinal impressions that ter-

minate posteriorly in a rugulose area in the middle of the posterior third of the segment, the adjoining areas very minutely sculptured; mesopleura sculptured like the greater part of the dorsulum, with a very shallow oblique groove that is finely striate and dull like the adjoining areas, a small pit in the middle of the posterior half of the segment; metanotum rather coarsely rugulose, basal area forming almost an equilateral triangle, areola pentagonal if completed, the lateral angles very near the base, the sides parallel, the areola a little more than twice as long as wide, petiolarea ill defined, very broad angled above the middle, almost as broad as long; wings nearly as in the preceding species, areolet petiolate, quadrangular, the petiole as long as the shortest side of the areolet, first transverse cubitus a little shorter than the second, first abscissa of the cubitus beyond the first transverse cubitus as long as the transverse cubitus between the petiole and the cubitus, cubito-discoidal nervure with a slight elbow just before the middle, transverse median nervure a little beyond interstitial with the basal nervure, second abscissa of the discoidal nervure nearly two thirds the length of the recurrent nervure. Abdomen sculptured as in the preceding species. Uniformly covered with short, fine, silvery hairs which are tinted with golden on the dorsum. Black; scape and pedicellum ochreous beneath, brown above; mandibles yellow brown at tip; palpi, tegulae and base of wings yellowish; coxae and trochanters of anterior legs and trochanters of middle legs yellowish, remainder of anterior and middle legs testaceous, except the outer side of the tibiae which are whitish, the apical tarsal joint and claws of anterior and middle legs brown, tibiae and femora of the middle legs with a rufous tint, posterior legs rufous, the tibiae more or less brownish, the tarsi and claws dark brown; abdomen rufous, basal half of petiole blackish, venter yellowish, exerted portion of ovipositor about as long as the second abdominal segment, the sheaths a little shorter, ovipositor translucent, brown, sheaths black.

Type: University of Kansas. Type locality: Douglas county, Kansas. August, E. S. Tucker.

Paratype with the areola not quite twice as long as greatest width, the sides angled farther from the base and not parallel. Lawrence, Douglas county, Kansas, 900 feet. May, E. S. Tucker.

MALE.—Almost exactly as in the type; antennae thirty-nine jointed.

Type: University of Kansas. Type locality: Douglas county, Kansas. July, E. S. Tucker.

Amorphota nocturna, n. sp.

Superficially like *dubitatus*, from which it differs in the structure of the metanotum.

MALE.—Length, 5.5 mm. Head minutely sculptured; cheeks somewhat shining, very minutely roughened; face dull, very closely sculptured; antennae thirty-three jointed, scape and pedicellum together as long as the first joint of the flagellum, or a little longer. Thorax largely dull; dorsulum very closely sculptured, the parapsidal grooves represented by very shallow grooves that are more coarsely sculptured than the adjoining area, mesopleura almost bisected by a transverse, faint, sinuate, roughened impression or groove, the depressed portion of the superior half of the segment largely smooth and shining; scutellum and metathorax sculptured much like the dorsulum, basal area nearly quadrate, shining, areola pentagonal, the sides almost equal in length; petiolarea confluent with the areola, about twice as long as broad, angled near the middle, the sides below the middle not well defined, the lower half of the petiolarea and the apical lateral area rugulose; metapleura closely, indistinctly punctured and somewhat shining; wings faintly brownish, stigma pale brown, nervures darker, first abscissa

of the radius a little more than two-thirds the length of the second abscissa, areolet petiolate, quadrangular, almost a perfect square, petiole shorter than any side of the areolet, transverse median nervure interstitial, the second abscissa of the discoidal nervure almost two-thirds the length of the recurrent nervure. Abdomen as in *perrivalis*. Pubescence as in *perrivalis*. Black; mandibles yellow, brown at tip; tegulae, base of wings and trochanters yellow; proximal trochanters of posterior legs largely black, yellow only at apex, four anterior legs, coxae included, brownish testaceous, apical tarsi and claws brown or brownish, posterior femora rufous, posterior tibiae above with a broad brown band at base and apex, brownish yellow between, beneath somewhat rufous, the tarsi and claws dark brown, coxae black.

Type: University of Kansas. Type locality: Lawrence, Douglas county, Kansas. May, at night, E. S. Tucker.

Amorphota paenexareolata, n. sp.

Superficially like *tibiator*, which is more distinctly areolated.

MALE.—Length, 5 mm. Head sculptured very much as in the preceding species; antennae thirty one jointed. Thorax largely dull or dullish; dorsulum with broad, faintly impressed parapsidal grooves, very closely rugulose, the surface between the parapsidal grooves closely sculptured, dull, the surface between the parapsidal grooves and the sides of the dorsulum more shining and rather distinctly, closely punctured; scutellum rather shining, closely, distinctly punctured; mesopleura largely shining and closely punctured, the depressed area of the superior half of the posterior half of the segment smooth and shining to a great extent, the smooth, shining area bounded by rugulose areas, a slight shelf at its lower posterior margin; basal area of metanotum nearly quadrate, the areola if complete would form an irregular circle, petiolarea about twice as long as greatest width, angled above the middle, not much wider than the areola; metapleura rather shining, very closely punctured; wings almost clear, stigma testaceous, nervures almost blackish testaceous; first abscissa of the radius a little more than two-thirds the length of the second abscissa, areolet petiolate, quadrangular, the petiole nearly as long as the longest side of the areolet, first transverse cubitus a little shorter than the second, the two lower sides of the areolet almost equal, second abscissa of the discoidal nervure about half the length of the recurrent nervure, transverse median nervure received a little beyond the basal nervure. Abdomen as in *perrivalis*. The pubescence also as in that species. Black; basal joint of the scape with a triangular yellow area; mandibles yellow, brown at apex; tegulae, base of wings and trochanters as in *nocturna*; anterior and middle coxae largely yellowish, posterior coxae black, four anterior legs otherwise testaceous, the apical tarsal joint and claws brown or brownish, posterior legs rufous, tibiae brownish above, tarsi brown, claws dark brown.

Type: University of Kansas. Type locality: Douglas county, Kansas. August, E. S. Tucker.

Campoplex expertus Cresson.

Douglas county, Kansas, 900 feet; F. H. Snow.

Campoplex photomorphus, n. sp.

Related to *C. bellus*, in which the pubescence of the metanotum is sparser and the median groove deeper.

FEMALE.—Length, 12 mm. Head very closely sculptured; cheeks rather shining with shallow, almost adjoining punctures; face dull, with shallow adjoining punctures giving a reticulate or rugulose appearance; antennae over

thirty jointed (tips broken), scape and pedicellum together nearly as long as the first joint plus one-half of the second joint of the flagellum. Dorsulum dull, sculptured nearly like the face, the punctures rather distinct; scutellum like the dorsulum; mesopleura sculptured like the cheeks, the punctures more separated, a broad oblique shallow groove near the posterior border on the upper half, the groove and the area back of it largely smooth and polished, the upper end of the groove transversely striate, the lower end terminating in a pit; metathorax appearing regularly reticulate with adjoining, shallow, indistinctly defined punctures, the median groove of the metanotum shallow, not at all sharply impressed, the surface of the metanotum almost obscured by silvery pubescence; wings hyaline, stigma pale brown, nervures dark brown; first abscissa of the radius a little more than two-thirds the length of the second abscissa; areolet petiolate, quadrangular, the petiole as long as the shortest side of the areolet; first transverse cubitus a little shorter than the second; first abscissa of the cubitus beyond the first transverse cubitus a little shorter than the first transverse cubitus; transverse median nervure received a little beyond the basal nervure, the abscissa between it and the basal nervure about as long as the petiole of the areolet; third abscissa of the discoidal nervure nearly one-half as long as the recurrent nervure; transverse median nervure of the posterior wings broken or elbowed where the middle third joins the lower third. Abdomen smooth, very minutely sculptured, rather subtle and shining. Pubescence silvery, very conspicuous only on the metanotum and scutellum, uniformly distributed elsewhere, shortest and least conspicuous on the mesopleura, legs, and abdomen. Black; mandibles dirty yellow, apex dark brown; tegulae, base of wings, anterior legs, excepting coxae entirely, trochanters and base of femora beneath, apical half of middle femora in part, tibiae and tarsi of middle legs, base of posterior tibiae and metatarsi yellow; apical tarsal joints of anterior and middle legs and tarsal joints of posterior legs, excepting base of second and third joints which are pale, and basal third of metatarsus, brown; abdomen rufous, except the petiole and greater portion of second and apical segments and apex of penultimate segment, all of which are black; ovipositor exerted not much more than one millimeter, pale castaneous, sheaths nearly black.

Type: University of Kansas. Type locality: Hamilton county, Kansas, 3350 feet. June, 1902, F. H. Snow.

Exochilum mundum Say.

Morton county, Kansas, 3200 feet; June, 1902. F. H. Snow.

Anomalon fulvescens Cresson var. *hemimelas*, n. var.

Readily distinguished from the typical form in the nearly entirely black thorax and the black ultimate and penultimate abdominal segments.

Type: University of Kansas. Type locality: Douglas county, Kansas, 900 feet. October.

Paratypes from Colorado are in the collection of the American Entomological Society.

Anomalon pæneferrugineum, n. sp.

Resembles *edwardsii* and *nigriceps* in the coarse sculpture of the metanotum.

FEMALE.—Length, 21 mm. Head shining; cheeks rather sparsely, indistinctly punctured; face roughened, closely punctured, the punctures small, eye margins sparsely, indistinctly punctured; point of the clypeus short; antennae over forty jointed (broken). Dorsulum shining, covered with distinct, separated punctures; parapsidal grooves distinct, deeply impressed, terminating before the posterior margin of the dorsulum, which is transversely striate; scutellum uneven,

covered with large shallow, more or less separated punctures; pro- and mesopleura shining, smooth, rather closely punctured, the upper fourth of the mesopleura rugose; metathorax very coarsely reticulate, the pits more or less, nearly a millimeter in width; three nearly semicircular ridges on the apical third of the metanotum; wings strongly brown, nervures and stigma dark brown; recurrent nervure received a little beyond the transverse cubitus, almost interstitial; the apical side of the third discoidal cell a little more than twice the width of the basal side of the cell; transverse median nervure in posterior wings broken in the middle. Abdomen smooth, petiole polished, succeeding segments dullish, minutely, sparsely punctured. Brownish ferruginous; face and lower half of cheeks largely yellow; a spot between the ocelli, sternum, basal margin of metathorax, posterior coxæ and basal trochanter of posterior legs and apical third of posterior tibiæ black or very nearly black; dorsum of second, ultimate and penultimate abdominal segments more or less black; dorsal edge of prothorax and a small spot on anterior edge of dorsulum blackish; exerted portion of ovipositor brown, translucent, as long as the dorsal aspect of the third segment of the abdomen.

Type: University of Kansas. Type locality: Wallace county, Kansas, 3000 feet. June, 1878, F. H. Snow.

Atrometus angitioides, n. sp.

FEMALE.—Length, 9 mm. Head dullish; cheeks apparently impunctate; face with small separated punctures; antennæ about forty-two jointed, scape and pedicellum together shorter than the first joint of the flagellum. Thorax largely dullish; the parapsidal grooves represented only by very shallow channels on the anterior half of the dorsulum; the dorsulum punctured nearly like the face; mesopleura more shining than any other portion of the insect, with a rather broad oblique groove that is transversely striate, separating a triangular polished, almost impunctate area from the lower anterior portion of the sclerite; scutellum more sparsely punctured than the dorsulum; metanotum divided into areas by strong, raised lines or ridges, basal area nearly quadrate, areola confluent with the petiolarea, forming a long, nearly parallel-sided enclosure, the areola, if completed, would be pentagonal and about one and a half times as long as broad, the lateral angles far above the middle, areola smooth and shining, minutely sculptured, the petiolarea transversely striate, the striae not very distinct; metapleura rather closely, distinctly punctured, the tegument between minutely sculptured; wings with a brownish tinge, nearly clear, stigma pale yellowish, nervures dark brown; nearly all of the apical abscissa of the radius and the apical abscissa of the cubitus very pale testaceous: first abscissa of the radius about two-thirds the length of the second abscissa; transverse cubital nervure a little less than one-half of the basal abscissa of the radius; recurrent nervure nearly twice the length of the transverse cubitus, the abscissa between the two very short, the recurrent nervure almost interstitial; the stump of a distinct nervure beyond the recurrent nervure is about one-half the length of the transverse cubitus; transverse median nervure interstitial; the second abscissa of the discoidal nervure a little shorter than the transverse cubitus, the disco-cubital nervure nearly straight, not broken or bent. Abdomen smooth; petiole polished, succeeding segments subtle, rather sparsely, minutely punctured, the second abdominal segment finely, longitudinally striate. Covered with short, fine, whitish pubescence, nowhere conspicuous. Ferruginous; an orbital line, scape, clypeus, mandibles, coxæ of four anterior legs and second ventral abdominal segment more or less yellowish; large part of occiput, vertex, front, flagellum, base of metanotum, base of petiole, basal half of second abdominal segment, base of

third, apex of fourth, and all of fifth and sixth segments dark brown or black; ovipositor very dark brown, sheaths black; four anterior legs rather testaceous, posterior tibiae and tarsi brownish.

Type: University of Kansas. Type locality: Douglas county, Kansas. June.

Eiphosoma pyralidis Ashmead.

This species is very distinct from its congeners in having a perfect areola which is rather oval in outline and nearly three times as long as wide.

Male. Douglas county, Kansas, 900 feet.

Erymotylus felti, n. sp.

In the length of the recurrent nervures and in the pectination of the claws this species is like *macrurus*; in the hooklets of the posterior wings like *arctia*.

FEMALE.—Length, 15 mm. Head nearly circular; the ocelli well separated, the distance between them and between them and the eye nearly equal to the width of an ocellus; eyes gently emarginate within the inner margin barely sinuate; malar space nearly as high as the space between the lateral ocellus and the eye margin; head shining; cheeks apparently impunctate; the face closely punctured, sparsely along the eyes; clypeus rather sparsely, much more coarsely punctured than the face; antennae fifty-two jointed, the scape and pedicellum together a little shorter than the first joint of the flagellum. Thorax shining; dorsulum sparsely to closely punctured with small punctures; parapsidal grooves absent, indicated only by shallow impressions near the anterior margin, mesopleura closely, distinctly punctured, with a short oblique impression near and nearly parallel with the posterior margin of the sclerite; scutellum sparsely punctured; metanotum rather indistinctly, closely punctured laterally, sparsely above, the disc also somewhat wrinkled and with a shallow longitudinal channel; metapleura more closely punctured than the mesopleura; wings faintly brown, almost clear, stigma brownish testaceous, nervures dark brown; abscissa between the basal nervure and the transverse median nervure about as long as the penultimate joint of the flagellum; transverse median nervure in the posterior wings broken two-thirds the length of the nervure above the base. Head and thorax covered with short, white pubescence, nowhere sufficiently abundant to hide the surface. Abdomen polished, all the segments except the petiole with rather sparse microscopic setigerous punctures. Yellow; eyes and ocelli black; tips of mandibles dark brown; flagellum nearly orange, but darker; dorsulum with broad testaceous stripes; sternum, legs, venter of abdomen, second dorsal segment, and margins of the remaining segments more or less brownish testaceous.

Type: University of Kansas. Type locality: Hamilton county, Kansas, 3350 feet. June, 1902, F. H. Snow.

Paratype from Denver, Colo., collected in June, is in the collection of the American Entomological Society.

Named in honor of Prof. E. P. Felt.

Ophion idoneum, n. sp.

Related to *tityri*, from which it differs in the more separated ocelli, the not strongly appendiculate subdiscoidal nervure, and in the sculpture of the metanotum, which has but one quadrangular area, the areola.

MALE.—Length, 14 mm. Structure of the head nearly as in *E. felti*; cheeks rather sparsely punctured; face closely punctured, even to the eye margins; punctures of the clypeus more separated than on the face; mandibles deeply punctured; antennae over fifty-four jointed (apical joints broken off). Dorsulum shining; with the parapsidal grooves rather distinct on the anterior third, the

dorsulum minutely, closely, indistinctly punctured; scutellum sparsely punctured; mesopleura shining, closely punctured, with two grooves on the superior half, the posterior groove nearly parallel with the posterior margin of the sclerite and nearly at right angles to the broader anterior groove, which attains the anterior margin of the sclerite. Metanotum rather shining, somewhat roughened with a transverse carina near the base and a longitudinal Y-shaped carina in the middle, forming with the basal carina the medial area or areola, which is nearly quadrangular, an inverted V-shaped carina on each side of the basal half of the metanotum; metapleura, with separated punctures, dullish; wings faintly brownish, nearly clear, stigma brownish testaceous, nervures dark brown; cubito-discoidal nervure broken in the middle; the first recurrent nervure less than one-half the length of the second recurrent nervure; transverse median nervure interstitial; transverse median nervure in posterior wings broken a trifle below the middle. Claspers rather broadly rounded at apex. Pubescence and abdomen as in *E. felti*. Ferruginous; orbits yellow; mandibles black at tip; legs paler, more testaceous than the thorax; venter more or less black; flagellum dull pale brown.

Type: University of Kansas. Type locality: Douglas county, Kansas, 900 feet. May, 1893, W. A. Snow and S. W. Williston.

Ophion bilineatum Say.

Hamilton county, Kansas, 3350 feet; F. H. Snow. Douglas county, Kansas; August, E. S. Tucker; April, W. J. Coleman.

Thyreodon morio Fab.

Douglas county, Kansas; V. L. Kellogg.

Thyreodon snowi, n. sp.

FEMALE.—Length, 25 mm. Head somewhat broader than in *morio*; the face more even, a small tubercle in the middle of the face a little below the insertion of the antennæ, face with adjoining punctures, giving a rugulose appearance, punctures along the eye margin distinct; clypeus sparsely, deeply punctured; cheeks shining, distinctly, closely punctured; antennæ sixty-one jointed, scape and pedicellum together a little longer than the first joint of the flagellum. Dorsum shining, closely punctured, especially on the anterior margin where the punctures are so close as to give a rugulose appearance; parapsidal grooves distinct, rugose, forming a U and not attaining the posterior border; scutellum closely punctured, traversed by an arcuated raised line describing a semicircle; mesopleura closely punctured, nearly rugulose below, area along the upper half of the posterior border of the mesopleura polished, impunctate; metanotum rugulose, the posterior face with a median transversely striate groove; metapleura distinctly, closely punctured, wings fuscous, not as dark as in *morio*, a broad bare yellow area in the middle of the anterior half of the posterior wings; neuration nearly as in *morio*, the transverse median nervure of the posterior wings broken nearer the median nervure than in *morio*. Petiole smooth and shining, sparsely, minutely punctured, the remaining segments of the abdomen as in *morio*. Covered with inconspicuous pubescence, blackish or brownish on the dark portions, golden brown on the pale parts. Black; orbits, cheeks, anterior margin of the dorsulum, superior anterior and posterior margin of the mesopleura brownish; antennæ orange as in *morio*, scape and pedicellum brown; four anterior legs with the terminal trochanter, femora, tibiæ and tarsi almost entirely and posterior tibiæ and tarsi brownish testaceous, middle and posterior legs with the apical tarsal joint brown.

Type: University of Kansas. Type locality: Wallace county, Kansas, 3000 feet. June, 1878, F. H. Snow.

Metopius grandior, n. sp.

Related to *M. montanus*, from which it differs in size, color, and sculpture.

FEMALE.—Length, 15 mm. Head typical; cheeks minutely, closely sculptured and sparsely punctured; shield of the face as broad as long, with a faint median longitudinal elevation, closely punctured, the anterior margin almost pointed in the middle; antennæ fifty-four jointed, scape and pedicellum together about as long as the first joint of the flagellum plus the second. Thorax very much as in *montanus*, the dorsulum dull and very closely punctured; propleura partly striate, partly punctured; mesopleura with adjoining punctures; metanotum dull, with a median funnel-shaped enclosure, which has the narrow portion nearly as wide as one-half the widest portion; wings as in *montanus*, more fuscous along the anterior borders. Abdomen closely punctured, the punctures not distinctly tending to become confluent, the segments not appearing coarsely, longitudinally striate, the elevated portion of the first abdominal segment bounded by a strong carina laterally, the carina not extending much beyond the middle of the segment. Almost uniformly covered with short, golden brown pubescence. Ferruginous: shield of face with a narrow prolongation on the front between the antennæ and along each eye margin, a spot on malar space, a spot at base of mandibles, a narrow band at base of labrum, coxæ and trochanters of four anterior legs, most of posterior coxæ and femora, apical margin of scutellum, post-scutellum, basal abdominal segment, median and lateral spots on apex of third abdominal segment, the fourth, fifth, sixth and seventh segments, except at base, yellow; head, except as mentioned, a median band on the dorsulum, base of scutellum, lower half of propleura and mesopleura more or less, metapleura partly along the anterior margin and base of abdominal segments, the third broadly black; antennæ brown, blackish above; posterior femora blackish posteriorly, legs, except as mentioned, brownish testaceous.

Type: University of Kansas. Type locality: Hamilton county, Kansas, 3350 feet. June, 1902, F. H. Snow.

Bæthus ænigmaticus, n. sp.

In color this species is related to *B. howardi*.

MALE.—Length, 5.5 mm. Head normal, polished, smooth, tubercles on the clypeus thick and prominent; scape and pedicellum together as long as the first joint of the flagellum. Thorax smooth and polished; parapsidal grooves not impressed; mesopleura with a small, shallow, puncture-like impression in the middle of the sclerite near the posterior margin; metapleura with a short, oblique groove directed forward and downward, and attaining the anterior margin; wings fuscous, stigma and nervures very dark brown; the first abscissa of the radius about one-half the length of the second; transverse cubitus about one third the length of the first abscissa of the radius, the abscissa of the cubitus beyond the transverse cubitus as long or very nearly as long as the transverse cubitus, the terminal abscissa of the cubitus nearly straight; transverse median nervure interstitial, though not exactly, being a trifle beyond interstitial; first recurrent nervure straight, almost as long as the second recurrent nervure which is curved; discocubital nervure not at all broken, with not even a trace of a stump of a vein; transverse median nervure in the posterior wings broken where the basal fourth joins the succeeding fourth. Abdomen smooth and shining, the thyridia of the second segment close to the lateral margin and parallel therewith, not attaining the middle of the segment, though terminating near the

middle. Obscurely pubescent, the pubescence long and conspicuous only on the metanotum. Black; anterior margin of the face, clypeus, greater portion of the second abdominal segment, part of the third, brownish; mandibles yellowish; dorsulum, scutellum, propleura and upper portion of mesopleura ferruginous; apical two-thirds of anterior tibiae, anterior tibiae and tarsi brownish ferruginous; middle tibiae brownish; venter of abdomen pale beneath.

Type: University of Kansas. Type locality: Douglas county, Kansas, 900 feet. F. H. SNOW.

Sychonoporthus tuckeri, n. sp.

FEMALE.—Length, 4 mm. Head dullish, minutely sculptured; malar space high, as high as the scape is broad; antennae twenty-five jointed, the scape and pedicellum together about as long as the fourth joint of the flagellum. Thorax dullish; dorsulum nearly like the face; parapsidal grooves rather distinct on the anterior third of the dorsulum; mesopleura finely coriaceous, the upper posterior angle smooth and polished, a small pit in the middle of the sclerite at the posterior border; metanotum coriaceous with a large pentangular areola which has the sides of equal length or nearly, basal area wanting, petiolarea occupying nearly all of the posterior face of the metathorax, a strong ridge bounding the posterior face of the metathorax, produced into a rather sharp angle above the middle on each side; metapleura distinctly separated from the metanotum and coriaceous; wings very faintly brownish, nearly clear, stigma and nervures dark brown, the nervures not as dark as the stigma; areolet if complete would be pentangular, open behind, sides almost equal; transverse median nervure nearly interstitial, received by the median nervure a little beyond a basal nervure; transverse median nervure in the posterior wings broken about one-third the length of the transverse median nervure above its base. Abdomen nearly smooth; first, second and third segments coriaceous, except the apical margin, which is polished; the segments beyond the third entirely polished; ovipositor exerted about as long as the first two abdominal segments together. Black: scape and posterior coxae brownish testaceous, the anterior and middle coxae testaceous and whitish, the trochanters of the four anterior legs white or whitish, of the posterior legs testaceous, rest of the legs nearly entirely testaceous and somewhat brownish, posterior tibiae especially brownish at base and apex, yellowish between, apical tarsal joint and claws brown; ovipositor brown, translucent, sheaths black.

Type: University of Kansas. Type locality: Douglas county, Kansas. August, E. S. TUCKER.

Glypta succineipennis, n. sp.

Closely related to *varipes*, from which it differs in sculpture, size, and color.

FEMALE.—Length, 10 mm. Head shining; front closely punctured, the punctures confluent, giving a transverse rugose appearance; cheeks polished, sparsely punctured; clypeus indistinctly punctured; antennae thirty-seven jointed, scape and pedicellum together distinctly shorter than the first joint of the flagellum; malar space about as high as half the length of the scape. Dorsulum shining, distinctly punctured, the punctures close together, only the width of a puncture between them; parapsidal grooves represented on the anterior two-thirds of the dorsulum by shallow impressions, converging and terminating in a very closely punctured area; scutellum punctured like the dorsulum; mesopleura punctured very like the dorsulum, with a transverse impression in the middle of the posterior half, the impression attaining the posterior margin; metanotum shining, with well-separated punctures, bounded posteriorly by a transverse

carina, a longitudinal carina down the disc each side of the middle, these carinae nearly parallel at least on the posterior half and forming an oblong or nearly oblong area, lateral areas partly defined by short, imperfect carinae; metapleura more closely punctured than the mesopleura; wings distinctly yellowish, nervures and stigma pale brown, the stigma paler than the nervures; discocubical nervure without a vein; transverse cubitus a little longer than the abscissa of the cubitus beyond it; transverse median nervure in the posterior wings broken only by an indistinct nervure. Abdomen very closely punctured; the first segment with two longitudinal carinae, with a transverse groove to each side of the carinae at the apex of the segment; the impressed abdominal segments almost uniformly punctured throughout, the oblique impressions punctured like the raised portion, forming an angle of about sixty degrees with the base of the segment, attaining the base but not the apex, rather abruptly diverted to the sides near the apex of the segment; no indication of an apical transverse ridge on the segments, sides of the impressed segments somewhat impressed near the middle; ovipositor about 10 mm. long. Inconspicuously sericeous. Black; greater part of clypeus and mandibles dark chestnut; a spot on metapleura and apical margins of abdomen colored like the clypeus and mandibles; legs to a great extent testaceous, tinted with ferruginous; part of anterior coxae, anterior and middle trochanters whitish yellow; tegulae and lateral edge of prothorax on posterior half whitish; anterior and middle tarsi ferruginous, posterior tibiae and tarsi brown, the former whitish on the outer side, except at apex, the tarsal joints whitish at base; ovipositor dark brown, the sheaths black.

Type: University of Kansas. Type locality: Wallace county, Kansas, 3000 feet. June, 1878, F. H. Snow.

Glypta aprilis, n. sp.

FEMALE.—Length, 9 mm. Head shining; face almost uniformly, very closely punctured: the clypeus sparsely, indistinctly pitted; cheeks more shining than the face, rather sparsely, indistinctly punctured; malar space about as high as half the length of the first joint of the flagellum; antennae over twenty-seven jointed (broken), scape and pedicellum together distinctly shorter than the first joint of the flagellum. Dorsulum nearly as in *succineipennis*; mesopleura nearly as in *succineipennis*; metapleura rather sparsely punctured; the disc of the metanotum about as in *succineipennis*, the longitudinal carinae not well defined, sides of metanotum rather sparsely, coarsely punctured; wings blackish, nervures and stigma dark brown, blackish; neuration almost exactly as in *succineipennis*. Abdomen very nearly as in *succineipennis*, duller; ovipositor a little longer than the abdomen. Pubescence as in *succineipennis*. Black; clypeus largely, tubercles, tegulae and base of wings white; legs brownish testaceous, except as follows: Claws of four anterior legs brown, tibiae of posterior legs whitish, brownish behind, a broad brown band at apex and a brown band near the base, tarsi of posterior legs brown, the basal joints whitish at base; lower posterior portion of mesopleura castaneous; metapleura colored nearly like the legs, but with a distinct rufous tint: ovipositor and sheaths colored as usual.

Type: University of Kansas. Type locality: Douglas county, Kansas, 900 feet. April 23, 1892, north bank of Kansas river, E. S. Tucker.

Glypta brunneisigna, n. sp.

FEMALE.—Length, 6.5 mm. Head as in *aprilis*; the malar space distinctly a little less in height than half the length of the first joint of the flagellum; antennae over thirty-four jointed (broken). Thorax nearly as in *aprilis*; the dorsulum rather dullish and very closely punctured; metanotum very closely punctured,

the transverse carina distinct, the longitudinal carinae on the disc rather indistinct, widely separated and nearly parallel on the apical half; neuration of wings as in *succineipennis*, yellowish, stigma and nervures pale brown, nearly testaceous. Abdomen very much as in *aprilis*; ovipositor as long as the abdomen. Pubescence as usual. Black; antennae brown; clypeus with a brown mark anteriorly; superior edge of prothorax yellow, tegulae whitish, base of wings yellow; lower half of mesopleura, mesosternum and metapleura ferruginous; legs to a great extent testaceous to brownish testaceous, trochanters and anterior coxae whitish, claws brown, tarsal joints of middle legs whitish, brown at tip, tibiae and tarsi of posterior legs brown and whitish, apical fourth of the posterior tibiae brown, and a brown band near the base, basal joint of the posterior tarsi with the apical third brown, the four succeeding joints with the apical half brown, the apical joint entirely brown; ovipositor and sheaths of the usual color.

Type: University of Kansas. Type locality: Douglas county, Kansas. F. H. Snow.

Pimpla annulipes Brullé.

Lawrence, Douglas county, Kansas, 900 feet; June, E. S. Tucker.

Ephialtes irritator Fabricius.

Lawrence, Douglas county, Kansas; November 20, 1897.

Thalessa atrata Fabricius.

Lawrence, Douglas county, Kansas; May 27, 1901, Hugo Kahl.

Harrimaniella pæneimitatrix, n. sp.

Closely related to *immitatrix*, from which it differs in sculpture and color.

FEMALE.—Length, 9 mm. Head dull, very minutely sculptured, and with adjoining shallow punctures; face distinctly elevated in the middle; clypeus rather shining, sparsely punctured, separated from the face by a rather distinct, shallow, broad impression; malar space a little shorter than half the length of the first joint of the flagellum; antennae forty-two jointed, scape and pedicellum about as long as the second joint of the flagellum. Thorax almost uniformly dull and punctured like the face; dorsulum with parapsidal grooves not even indicated by faint grooves; the mesopleura have a shining pit a little above the middle near the posterior margin of the sclerite; metanotum without longitudinal carinae, more coarsely punctured than the mesopleura, almost rugulose punctate; wings tinted with dark brownish, nearly blackish, nervures and stigma dark brown; areolet quadrangular, petiolate, the petiole shorter than the shortest side of the areolet, but variable in length. Abdomen smooth and impunctate, except the first segment which is roughened and indistinctly punctured in part; ovipositor, 8.5 mm. long. Uniformly sericeous, pubescence short and whitish, nowhere conspicuous. Black; clypeus anteriorly testaceous; wings at base yellowish; legs yellowish rufous, except as follows: Trochanters with some fuscous, posterior tibiae brown, rufous only on the inner side, tarsi and claws brownish, the posterior tarsi very dark brown; a broad apical margin of first abdominal segment, second and third segments, except narrow lateral margin, fourth segment, except narrow lateral margin and broad apical margin, deep reddish ferruginous; ovipositor brown, sheaths black.

Type: University of Kansas. Type locality: Douglas county, Kansas, 900 feet. F. H. Snow.

Arenetra leucotenia, n. sp.

Closely related to *rufipes*, from which it differs in color and structure.

FEMALE.—Length, 10 mm. Head and thorax almost uniformly dull, closely punctured, nearly rugoso-punctate, the punctures shallow and not sharply defined; antennæ forty-four jointed, scape and pedicellum together distinctly longer than the third joint of the flagellum, but shorter than the first joint. Dorsulum rather shining and with some well-separated punctures, hardly an indication of parapsidal grooves present; mesopleura with a small, shining, sparsely punctured space above the middle of the sclerite and at the posterior border: carina separating metanotum from metapleura very faint, apparently no carina between the spiracles and the metanotal metapleural carina, an indistinct carina between the spiracles and the posterior carina of the metathorax; wings almost exactly as in *nigrita*, the discocubital nervure not broken. Abdomen with the first segment almost rugosopunctate, the second segment roughened, the third dullish, the segments beyond polished. Pubescence typical. Black; femora at tip yellowish, tibiae brownish, tarsi of four anterior legs pale brownish, the posterior tarsi dark brown; second and third abdominal segments with a narrow whitish apical and lateral margin, fifth, sixth and seventh segments with an apical whitish margin which extends more or less to the sides; ovipositor and sheaths of about equal length, nearly as long as the first two abdominal segments, ovipositor dark brown, sheaths black; first five ventral segments brownish with a broad apical margin yellowish.

Type: University of Kansas. Type locality: Douglas county, Kansas, March, F. H. Snow.

Nematopodius exclamans, n. sp.

Related to *N. (Mesostenus) gracilipes* and *longicaudus*.

FEMALE.—Length, 13 mm.; ovipositor, 29 mm. Head shining; face rather dullish, very closely punctured on the median elevated portion, sides of the face along the edges polished, sparsely punctured; cheeks polished, apparently impunctate; clypeus distinctly bulged, apparently more coarsely punctured than the raised portion of the face; labrum sparsely and rather indistinctly pitted, deeply emarginate on the anterior margin; mandibles rather sparsely, coarsely punctured, some of the punctures confluent; malar space not much higher than the flagellum is wide at base; antennæ thirty-four jointed, the scape and pedicellum together as long or nearly as the fourth joint of the flagellum; an elongated low tubercle between the antennæ. Thorax shining; dorsulum with distinct parapsidal grooves that terminate in or near the middle of the posterior half, the middle lobe with rather sparse punctures, the lateral lobes with the punctures close together, but to a great extent well separated, some nearly adjoining; scutellum polished, rather sparsely punctured; metanotum rugulose, dullish, except the basal lateral area which is to a great extent polished and sparsely punctured, the outer portion shining and closely punctured, metanotum rather distinctly areolated, basal area small, nearly quadrate, areola pentagonal, lateral sides equal or nearly, basal side less than one-half the length of the apical side; petiolarea not distinctly defined, broad, angled below the middle, and occupying the greater part of the metathorax; metapleura rugulose, punctate and closely so, dullish; mesopleura sculptured nearly like the lateral lobes of the dorsulum; mesopleura separated from the mesosternum by a distinct, narrow, crenate, undulate groove the mesosternum with a longitudinal, crenate, medial groove that is about as narrow but not so deep as the pleurosternal groove; wings strongly brownish, stigma and nervures dark brown, the stigma pale at base;

areolet nearly oblong, more than twice as broad as high; the recurrent nervure a little before interstitial with the second transverse cubitus; discoidal nervure nearly straight, the so-called first recurrent nervure nearly two-thirds the length of the true recurrent nervure; transverse median nervure a little basad of interstitial with the basal nervure; transverse median nervure in the posterior wings broken in the middle. Abdomen entirely smooth and highly polished; the petiole slender with a few punctures dorsally and nearly as long as the abdomen beyond the second segment, the petiole not much broader at apex than at base; the second segment nearly as long as the petiole, more than twice as wide at apex as at base. Very thinly, inconspicuously covered with short whitish hairs. Ferruginous; apex of mandibles, mesosternum anteriorly and posteriorly, margins around the scutellum and lateral ventral margins of metathorax black or blackish; flagellum almost entirely black or blackish, basal joint beneath brown, joints 6, 7, 8 and base of 9 white above, scape and pedicellum nearly concolorous with the face; ovipositor translucent brown, sheaths black.

Type: University of Kansas. Type locality: Clark county, Kansas, 1962 feet. May, 1903, F. H. Snow.

Paratype from Morton county, Kansas, 3200 feet. June, 1902, F. H. Snow.

Nematopodius macilentus Cresson.

One male. Douglas county, Kansas, 900 feet; F. H. Snow.

Mesostenus thoracicus Cresson.

One female, small form. Clark county, Kansas, 1962 feet; June, F. H. Snow.

Mesostenus discoidaloides, n. sp.

Superficially very like *discoidalais*, from which it differs in structure and color details.

FEMALE.—Length, 10 mm. Head shining; front polished, almost impunctate, punctured along the eye margin; face sparsely, indistinctly punctured; clypeus polished, almost impunctate; cheeks polished, apparently impunctate; malar space distinct, as high as two-thirds the width of the mandibles at base; antennae twenty-five jointed, scape and pedicellum together distinctly shorter than the first joint of the flagellum, about as long as the fourth joint of the flagellum. Thorax shining; dorsulum distinctly, rather closely punctured and with distinctly impressed parapsidal grooves that extend back at least two-thirds the length of the dorsulum; mesopleura in greater part punctured like the dorsulum, an oblique shallow groove that is largely smooth and impunctate separates a small, polished, convex area in the upper posterior angle of the mesopleura from the rest of the sclerite, a pit near the middle of the sclerite (a little above the middle), and close to the posterior margin, the characteristic cryptine groove extending back from the anterior margin for about two-thirds the length of the sclerite and gently curved upward; scutellum polished, rather sparsely punctured; metathorax more closely punctured than the dorsulum, the metathorax rounded and almost precisely divided into thirds, by transverse carinae, the basal carina moderate, the apical carina rather indistinct, apparently absent in the middle, spiracles oval, nearly round, no sharp angles whatever; wings almost clear, colorless, the apical margins narrowly infuscated, stigma pale brown, nervures dark brown; areolet pentangular, almost quadrate, the recurrent nervure received in the middle of the areolet; transverse median nervure in posterior wings bent to form an obtuse angle, with the angle a little above the middle and receiving the discoidal nervure. Abdomen shining; the first segment

polished and rather sparsely punctured; succeeding segments distinctly punctured, the punctures almost adjoining and giving a dullish appearance; the apical segments not so punctured, rather indistinctly punctured; exserted portion of ovipositor as long as the abdomen less the first segment, the sheaths shorter. Inconspicuously covered with fine silvery pubescence. Black; face almost entirely yellowish, two brown spots on each side of the clypeus, mandibles brownish at apical half, front, vertex, occipital margin of white, scape brownish with a yellowish spot beneath, flagellum black or nearly, except the sixth joint all but at base, seventh, eighth, ninth, tenth, eleventh joints entirely and twelfth joint at base pure white or nearly white; a broad band on the superior margin of prothorax, not uniting anteriorly, collar, coxæ and first trochanter of anterior legs, tegulae, extreme base of wings, spot beneath wing insertion, polished convex area of mesopleura, a broad oblique band extending from very near the anterior border of the mesopleura to the posterior border, joining the pale color of mesosternum, from which it is separated only anteriorly by the brownish of the cryptine groove, mesosternum almost entirely, except the fine median brownish groove, scutellum, part of postscutellum, a lunate mark between insertion of posterior wings and metathorax, posterior thirds of metanotum with a trilobed mark, the anterior lobe occupying the middle of the middle third, *i. e.*, between the transverse carinae, the posterior lobes and body of the mark occupying nearly all of the posterior face of the metanotum, metapleura almost entirely, coxæ and first trochanter of medial legs, coxæ of posterior legs, except a large mark internally, a smaller mark externally, and a longitudinal, sharply defined band posteriorly, first abdominal segment at base and apex, the succeeding segments with a more or less narrow lateral margin and a broad apical margin, margins of ventral segments more or less, posterior legs with the metatarsus, except basal half, second and third tarsal joints entirely, fourth tarsal joint, except at apex, white; otherwise the legs are brownish testaceous, except the apical tarsal joints which are more or less brown, and the claws which are dark brown.

Type: University of Kansas. Type locality: Douglas county, Kansas, 900 feet, at Rock Creek. Roy L. Moodie.

Cryptus (*Callicryptus*) *calipterus* Say.

MALE.—Differs from *Callicryptus* as follows: Transverse median nervure of posterior wings broken near the middle, only one transverse carina present, the upper hind angles of metathorax not toothed, fourth tarsal joint not strongly emarginate or bilobed.

Clark county, Kansas, 1962 feet. June, 1903, F. H. Snow.

Cryptus (*Itamoplex*) *americanus* Cresson.

MALE.—Douglas county, Kansas, 900 feet. June, 1892, W. J. Coleman.

Cryptus *citrinimaculatus*, n. sp.

Superficially like *C. (Itamoplex) americanus*, and, judging from the description, very like *mellicoxus*.

MALE.—Length, 9 mm. Head rather broad; face dullish, closely sculptured, distance between posterior ocelli greater than distance between lateral ocellus, about equal to the distance between the lateral ocellus and nearest eye margin; malar space equal in height to the width of the mandibles at base; cheeks shining, with minute well-separated punctures; antennae thirty-five jointed, scape and pedicellum together distinctly shorter than the first joint of the flagellum, about equal to the length of the second joint. Thorax almost uniformly dullish and rugulose, punctate, the punctures of the dorsulum well separated, small and to some extent indistinct, anteriorly the dorsulum is closely, indistinctly sculptured;

metanotum rugulose, with two distinct transverse carinae, not connected by longitudinal carinae on the superior face, therefore no areola, no distinct basal area, the petiolarea about as broad as long, occupying practically all of the posterior face of the segment; the metapleura duller and more densely ruguloso-punctate than the mesopleura; wings moderately smoky, the nervures dark brown, the stigma pale brown; transverse median nervure received by the median nervure a little basad of the basal nervure, the so-called discocubital nervure broken by a short abscissa in the middle; areolet pentangular, the second cubital side about equal to the radial side, the other sides subequal, transverse median nervure broken where the lower third of the nervure meets the middle third. Abdomen smooth and shining, covered with whitish pubescence, rather appressed and abundant on the face, dorsulum and abdomen; clypeus anteriorly and metathorax with erect, rather sparse pubescence; pleura with appressed, inconspicuous pubescence. Black; scape with a line in front, inner orbital margin entirely, a very narrow orbital line occupying the middle third of the orbital margin of the cheeks, the supraclypeal protuberance, the clypeus, mandibles, except base and apex, prolongation of the orbital band on the malar space, anterior coxae with a small spot anteriorly, anterior trochanters beneath more or less, basal trochanter of middle legs with a stripe beneath, lemon yellow; distal trochanters, tibiae and femora largely testaceo-ferruginous to ferruginous, the apical fourth of the posterior tibiae fuscous, tarsi of the four anterior legs colorous with the tibiae thereof, except the apical joint and claws which are brown, tarsi of posterior legs almost entirely fuscous.

Type: University of Kansas. Type locality: Douglas county, Kansas, 900 feet. F. H. SNOW.

Pezomachus alogus, n. sp.

MALE.—Length, 3.5 mm. Head dullish, subtle, minutely and indistinctly sculptured; clypeus conspicuously separated from the face; malar space about as high as the mandibles are broad at base; distance between anterior ocellus and lateral ocellus nearly as great as the distance between the lateral ocelli, the latter distance a little greater than the distance between the lateral ocellus and nearest eye margin; antennae twenty-three jointed, scape and pedicellum together about two-thirds the length of the first joint of the flagellum. Thorax with the pleura rather shining, the dorsulum more dullish with no indication of parapsidal grooves; metanotum rather evenly rounded, exareolate, and dullish, a short transverse groove at the middle of the posterior margin of the mesopleura; metapleura more shining than the metanotum, but subtle. Abdomen dullish; petiole nearly parallel sided, the apex not much wider than the base, sculpture of the first two segments not coarse, similar to the succeeding segments which are smooth and apparently impunctate. Wings nearly clear, faintly smoky, with a faint brownish band beneath the stigma and some brownish in the vicinity of the junction of the basal nervure with the median and transverse median nervures, stigma and nervures dark brown, the proximal angle of the stigma whitish; sides of the open areolet equal or nearly, discocubital nervure not broken; transverse median nervure interstitial with the basal nervure; the transverse median nervure in the posterior wings broken distinctly below the middle but not quite as far down as the upper end of the basal third of the nervure. Inconspicuously covered with whitish pubescence. Black; scape, pedicellum, mandibles, except tips, labrum, prothorax, legs and first three abdominal segments almost entirely testaceous; first joint of the flagellum at base, anterior lateral edges of the

dorsulum, mesopleura anteriorly, suture between meso- and metapleura, and fourth abdominal segments in part, more or less brown.

Type: University of Kansas. Type locality: Lawrence, Douglas county, Kansas. May, at electric light, E. S. Tucker.

Pezomachus testaceicoxus, n. sp.

MALE.—Length, 6 mm. Head dullish, minutely, densely sculptured, apparently microscopically rugulose; ocelli as in *P. alogus*; the clypeus not conspicuously separated from the face; malar space distinctly higher than the mandibles are broad at base; antennæ broken, scape and pedicellum together about three-fourths the length of the first joint of the flagellum. Thorax almost uniformly dull, minutely sculptured; parapsidal grooves distinctly impressed on the anterior half of the dorsulum; propleura shining, rugulose; mesopleura with the greater part of the upper posterior fourth polished, a short transverse groove which attains the posterior margin of the sclerite separates the polished area from the area beneath; the cryptine groove distinct from the anterior margin of the lateral edge of the mesosternum to near the posterior edge of the sclerite, extending up somewhat on the lower portion of the mesopleura; scutellum rather shining compared to the mesonotum; metanotum shining, rugose, distinctly areolated, the raised lines very distinct, basal area nearly quadrate, areola hexagonal, a little longer than wide, the basal side a little shorter than the apical side, the lateral middle angles a little below the middle of the areola, the four sides not mentioned of nearly equal length; petiolaria broad, occupying practically the entire posterior face of the segment; the metapleura minutely sculptured, dull; wings faintly brownish, almost clear, stigma and nervures dark brown, the basal angle of the stigma whitish; the open areolet with the sides nearly equal; the transverse median nervure a little beyond interstitial with the basal nervure; the transverse median nervure in the posterior wings broken distinctly below the middle, a little below the junction of the basal third of the nervure with the middle third. Abdomen dullish; the petiole nearly twice as broad at apex as at base, longitudinally striate on the apical half, rather rugose on the basal half, the basal half with a distinct raised line on each side, the raised lines parallel and forming the inner boundary of a shallow groove; the second segment is longitudinally rugulosostriate; the succeeding segments are apparently minutely, microscopically sculptured. The pubescence is whitish and nowhere conspicuous. Black; scape, pedicellum, basal spot on mandibles and margin of second abdominal segment brownish testaceous; legs almost entirely testaceous, posterior legs with apex of femora, tibiæ and tarsi almost entirely fuscous; second abdominal segment entirely pale brownish testaceous, the succeeding segments at apex concolorous with the second segment, otherwise more or less fuscous with some brownish testaceous in the middle.

Type: University of Kansas. Type locality: Douglas county, Kansas, 900 feet. May, F. H. Snow.

Platylabus (Colocnema?) omniferrugineus, n. sp.

Superficially like *Phæogenes lævigatus*.

FEMALE.—Head quadrate; face dull and closely, almost rugulose, punctured; the clypeus not at all separated, the anterior margin of the clypeus smooth, impunctate, and shining, anterior margin of the clypeus straight; labrum polished, roughened on the anterior margin, which also has a few punctures; front rather flat, slightly elevated, rather shining, and with well-separated punctures; distance between the posterior ocelli about as great as the distance between a lateral ocellus and the nearest eye margin, the ocelli forming a low

triangle; cheeks shining, distinctly punctured, the punctures well separated; mandibles shaped like a cornucopia, the tips blunt and not touching, broader at base than the malar space is high; antennæ thirty-two jointed, scape and pedicellum together easily as long as the first two joints of the flagellum combined, first joint of the flagellum nearly twice as long as wide, the two succeeding joints longer than wide, the joints following these, excepting the ultimate joint, wider than long. Thorax shining and distinctly punctured; dorsulum with no parapsidal grooves whatever, most of the punctures well separated; mesopleura punctured very like the dorsulum, impressed above the middle along the posterior margin, a faint indication of a cryptine groove on the anterior half of the sclerite close to where it joins the mesosternum; scutellum sparsely punctured, almost rigid laterally by the prolongation of a fold of the posterior lateral margin of the mesonotum; the postscutellum more finely punctured than the scutellum; metanotum closely, almost rugulosely punctate; superior face of the mesonotum bounded posteriorly by a rather sharp curved ridge, with a very short basal area confluent with the lateral areas and with a spade-shaped areola, the spiracles in the lateral areas very long and extending obliquely backward and outward, the posterior face of the metathorax divided into three areas by rather strong ridges, the petiolarea a little wider than the areola, occupying the middle; metapleura with well-separated distinct punctures on a polished surface; wings faintly smoky, tinged with yellowish especially at base; areolet pentagonal, the radial side on half the length of the transverse cubitus, and equal to the length of the second side formed by the cubitus, the first side formed by the cubitus and the transverse cubiti of equal length; the recurrent nervure broken a little below the middle by a short stump of a vein externally; the discocubital nervure broken by a short stump of a vein a little before the middle; transverse median nervure interstitial with the basal nervure; transverse median nervure of the posterior wings broken well below the middle about at the junction of the basal third with the middle third; legs very robust, the posterior coxæ rather pear-shaped, nearly globular, the anterior femora less than three times as long as broad, the middle femora about three times as long as broad, the posterior femora a little more than three times as long as broad, the tibiae of posterior legs normal at base or nearly, at apex nearly as broad as the posterior femora in the middle. Abdomen distinctly punctured; the petiole infundibuliform, more than twice as wide at apex as at base, shining and with well-separated punctures, laterally with a groove and with a ridge from the spiracles to the posterior margin; the second, third and fourth segments with smaller, closer punctures than the petiole, appearing dullish; the fifth segment and beyond shining and indistinctly punctured or sculptured. Inconspicuously covered with silvery pubescence which is long and most apparent on the clypeus, anterior margin of the labrum and the metathorax. Ferruginous; sutures around the insertion of the wings laterally and posteriorly, around the scutellum and postscutellum and more or less of the apical third of antennæ black; middle third of antennæ more or less whitish above, brownish beneath, basal third brownish above and below; mandibles with brown margins, claws brown, tarsi brownish.

Type: University of Kansas. Type locality: Douglas county, Kansas, 900 feet. May, F. H. Snow.

Phygadeuon (Pezoporus?) fungor Norton.

This species has previously been placed in the Ichneumoninae, Phæogenes, but it has a distinct cryptine groove. Two specimens have the scutellum and dorsulum entirely black, as in the type from New York state; in the third speci-

men the scutellum is largely rufous and the dorsulum has a broad brownish stripe down the middle.

Three males from Douglas county, Kansas, 900 feet. June and July, 1892, W. J. Coleman.

Ichneumon? (*Stiboscopus*?) *oryxicornis*, n. sp.

Related to *Ichneumon*? *honestus* Cresson.

MALE.—Length, 11 mm. Head shining, the cheeks especially; face closely punctured, space between clypeus and antennæ moderately elevated; clypeus not separated posteriorly by a groove, the anterior margin entire, straight; malar space less than half the width of the mandibles at base; front punctured very much like the face; vertex and cheeks similarly punctured, the punctures distinctly more separated than on the face; ocelli almost forming an equilateral triangle, distance between the posterior ocelli distinctly greater than the distance between lateral ocellus and nearest eye margin; antennæ thirty-five jointed, scape and pedicellum together about as long as the first joint of the flagellum or a little shorter. Thorax almost uniformly shining, the dorsulum alone somewhat dullish; dorsulum with distinct, well-separated punctures and parapsidal grooves, the parapsidal grooves moderately impressed and present only on the anterior third of the sclerite; scutellum convex, sparsely punctured, and not margined laterally; postscutellum apparently impunctate; superior face of metathorax with the basal area nearly crowded out and not defined laterally, and with an areola that is little more than a semicircle, posterior face with three areas; the petiolarea central, as wide as the areola, nearly parallel sided and broadly, shallowly channeled, the spiracles occupying the upper portion of the lateral area, near the metanotal-metapleural suture very narrow and long, directed obliquely backward and outward; mesopleura with distinct, closely arranged punctures and a transverse impression across the middle of the posterior half of the sclerite, the impression joining the posterior margin in a kind of pit, the cryptine groove appears as a crenulate, impressed, narrow groove on the anterior half of the mesosternum, close to and parallel with the junction between the mesopleuron and mesosternum; metapleura more closely, regularly punctured than the mesopleura; wings tinted rather moderately with brown, the nervures dark brown, stigma pale brown; areolet pentagonal, nearly quadrangular, distinctly longer than the greatest width, the radial side of the areolet about as long as the pedicellum is high and a little less than half the length of a transverse cubitus, the first cubital side longer than the second which is a little more than half the length of a transverse cubitus, discocubital nervure with a faint trace of a stump of a vein near the middle, the transverse median nervure interstitial, in the posterior wings the transverse median nervure is broken distinctly below the middle, a little below the junction of the lower third with the middle third. Abdomen dullish, except the petiole which is shining; sides of the petiole with a groove bounded above by a ridge that is interrupted at the spiracles and continues a little beyond the spiracles to the posterior margin; the second segment polished at base and distinctly, sparsely punctured, remainder closely punctured; succeeding segments closely, more or less distinctly punctured. Covered with inconspicuous short pubescence which is to a great extent whitish, tinted with golden on the dorsulum. Black; more or less broad orbital line, all of face below antennæ; mandibles, except apical portion, superior border of propleura and a transverse line below insertion of wings lemon yellow; antennæ brown below, black above, except joints 15, 16, 17, 18, 19, 20, which are more or less cream color; palpi whitish; inferior margin of propleura, tegulae, oblique line and spot on lower half of mesopleura, a large part of anterior and middle

coxae, anterior, middle and posterior trochanters, posterior coxae above, greater part of posterior face of metathorax, and a spot on metapleura, yellow; femora more or less ferrugineous, tibiae of anterior and middle legs brownish, whitish and testaceous, posterior tibiae dark brown at extreme base, apical half more or less brown, between the basal and apical dark portion the joint is whitish, tarsi testaceous, tinted with dull ferruginous in part, claws brownish.

Type: University of Kansas. Type locality: Douglas county, Kansas. July, E. S. Tucker.

Ichneumon (Eurylabus) extrematatis Cresson.

Female. Douglas county, Kansas, 900 feet; May, E. S. Tucker.

Ichneumon (Barichneumon) unifasciarius Say.

Male. Douglas county, Kansas; September.

Ichneumon (Stenichneumon) centrator Say.

Female. Hamilton county, Kansas; S. J. Hunter.

Trogus atrox Cresson.

Male. Clark county, Kansas, 1962 feet; June, F. H. Snow.

Male with same data as preceding and with the wings uniformly fuliginous, excepting the stigma, areolet distinctly pentangular, abdomen entirely black.

Male specimen from Hamilton county, Kansas, 3350 feet (June, 1902, F. H. Snow), with the wings as in the preceding specimen, but the areolet hardly pentangular, almost precisely quadrangular, the second abdominal segment obscurely maculated.

Trogus marginipennis Cresson.

This may be only a variety of *atrox*.

Male. Hamilton county, Kansas, 3350 feet; June, 1902, F. H. Snow.

Family STEPHANIDÆ.

Stephanus acutus Lepet Serv.

FEMALE.—Length, 14 mm. Head rather globular, the cheeks nearly as broad as the eyes; front with coarse, almost transverse rugæ, nearly rugose; vertex with three prominent teeth, the anterior tooth nearly as far from the anterior ocellus as from the eye margin, the posterior teeth on a line with the anterior ocellus, the teeth short and directed upward and backward, between the anterior ocellus and the posterior ocelli the sculpture is very much like the sculpture of the front, and nearly as coarse, back of the posterior ocelli the head is transversely, rather finely striate; the cheeks are polished and sparsely punctured, the malar space very much like the cheeks in sculpture and about as high as the scape is wide; pedicellum about half as wide and long as the scape, first joint of the flagellum about three-fourths the length of the second joint and about three-fourths the length of the scape and pedicellum together. Prothorax conical, dorsum transversely striate, pleura obliquely striate; dorsulum rugose, mesopleura with strong separated punctures; metanotum punctured somewhat like the mesopleura, the punctures more shallow, metapleura punctured and striate; posterior femora with two large and about six small teeth on the lower margin, the largest tooth stout, triangular, and situated a little before the middle, the next largest tooth slender and situated half-way between the largest tooth and the apex of the femur. Abdomen with the petiole more or less completely girdled with striae, the basal half of the petiole more nearly rugulose; remaining segments smooth and subtle, the petiole is about two-thirds the length of the

remaining portion of the abdomen. The ovipositor is as long as the insect and brownish, the sheaths black with a broad white annulus near the apex, almost as long as the ovipositor. The insect is shining and black and inconspicuously clothed with whitish or silvery pubescence; flagellum at base, middle and anterior legs, except the coxæ, posterior legs with trochanters, femora at base and apex, and tarsi more or less, brownish; tegulæ, malar space in part and mandibles on basal half more or less brownish. This is much smaller than the smallest size given by Schletterer in his monograph, but the size is undoubtedly the most unstable feature of this species.

Type: University of Kansas. Type locality: Kansas City, Jackson county, Missouri. Geo. C. Mackenzie, 1899.